PAMS Technical Documentation
NSE/M–1/3/6 Series Transceivers

Service Software Instructions

Original 08/98

CONTENTS

Service Software 5
General 5
Hardware requirements for Windows 3.1x 5
Hardware requirements for Windows 95 5
Software Environment of the Support Modules 5
Required Servicing Equipment 6
Installation 7
Mechanical Connections 7
Installing the Software on PC Hard Disk 8

Common Properties of the User Interface 9
Login Dialog 9
Main Window 10
Menu Bar 13
Product 13
Configure 14
Tuning 14
Testing 14
Software 15
Dealer 15
View 15
Phone Identity Window 16
Help 16

Mouse Cursors 17
Reserved Keys 17
Short Cut Function Keys 17
Alt Hot Keys 17
Ctrl Hot Keys 17
Shift Hot Keys 18
Key Strokes 18

Help Functions 20
Dialog boxes 20
Common Dialog boxes 20
Note Message Box 20
Query Message Box 21
Error Message Box 21
Custom Dialog boxes 22
Buttons 22
Reporting Status 23

NS*–1/3/6 FEATURES 24
Menu bar 24

Product 24
New command 24
Open... command 24
Initialise... command 24
Normal Mode 25
Local Mode 25

Tuning 26
RX Calibration... command 26
Tx Power... command 28
Tx I/Q... command 30
Energy Management Calibration... command 32

Testing 34
RF Controls... command 34
RSSI Reading... command 38
Self Tests... command 38
ADC Readings... command 41
Audio... command 42
Internal Audio Loops 42
External Audio Loops 44
User Interface... command 45
Call Simulation... command 45
Noise Sensitivity... command 47
IR Test... command 48

Software 49
Product Profile... command 49
Start Up Self–tests... command 49
Set Factory Values... command 51
Phone Identity... command 52
Warranty State... command 54
Production Data Edit... command 55
Flash Phone... command 56

Dealer 58
User Settings... command 58
Short Code Memory... command 59
SCM & User Settings... command 60
Set UI/DEV Default Values... command 61

Operators Settings... command 62
Post–programmable Memory... command 63

View 64
Quick/RF Info... command 64
Phone Identity... command 65

Appendix 1, Vocabulary 67

Service Software

General

To run the After Sales SW, a parallel port software protection device (PKD–1) has to be connected. TDF–4 box must connected to PC for flashing purposes. The user can use WinTesla functions in modules for testing NSE–1/3/6 and NSM–1 mobile stations (MS). The test functions send test messages from PC to MS and receive results and show them in the PC display. The messages can be sent via M2BUS or FBUS.

Note: if this software is to be run on laptops, the power saving feature MUST be switched off.

Hardware requirements for Windows 3.1x

The recommended minimum hardware standard to run Service Software is any computer which is 386 33 MHz or greater with at least 4 MB of memory and VGA type display (640 x 480). This assumes that only the WinTesla with After Sales Support Modules is active, i.e. other Windows packages are not running in the background.

Hardware requirements for Windows 95

The recommended minimum hardware standard to run Service Software is any computer which has Pentium processor, memory 8 MB and meets HW requirements recommended by Microsoft.

Software Environment of the Support Modules

The Service Software user interface is intended for the following environments: Microsoft Windows 3.1x (enhanced mode) and Windows 95 environment running in enhanced mode. Support for Microsoft NT may be added, if required. Detailed information about Windows and application usage can be found from the Microsoft Windows Version 3.1 Users Guide chapter one (Windows Basics) and chapter two (Application Basics).

As an ordinary Windows application, the main idea in the user interface is that selections are made with menus, push buttons and shortcut keys. Selections can be done by using keyboard and/or mouse. There is always a status bar displayed at the bottom of the main window which contains information about current actions.

Required Servicing Equipment

- Computer: At least IBM 80386 or compatible with one unused serial port (COM1 or COM2) *), one parallel port (LPT1), hard disk recommended
- Operating System: DOS Version 3.2 or later
- If PCLStart in use: DOS 6.22 and IBM 80486 or compatible
- Display: Any 80–character text display
- Service software version for 3.5" disk (product code: 0774080)
- Software protection key PKD–1 (product code: 0750018)
- Service MBUS Cable DAU–9S (product code: 0730108)
- Audio cable ADS–1 (product code: 0730011)
- Modular T–adapter (product code: 4626134)
- Service Box JBU–5 (product code: 0770120)

*) Note: A number of PC's of an older generation use the Intel, National Semiconductor, or United Microelectronics IC 8250 as the serial port UART. This is a comparatively inefficient circuit for current purposes and does not necessarily support the M2BUS adapter at 9600 baud. The newer UART's NS16450 and NS16550AF of National Semiconductor offer solutions for these problems.

Installation

Mechanical Connections

Caution: Make sure that you have switched off the PC and the printer before making connections.

Caution: Do not connect the PKD–1 key to the serial port. You may damage your PKD–1 !

The software controls the phone via a separate adapter connected to the serial port of the PC, and to the telephone's M2BUS (DAU–9P).

Attach the dongle PKD–1 to the parallel port 1 (25–pin female D–connector) of the PC. When connecting PKD–1 to the parallel port, be sure that you insert the computer side of the PKD–1 to the PC (male side). If you use a printer on parallel port 1, install the PKD–1 between the PC and your printer cable.

The PKD–1 should not affect devices working with it. If some errors occur (errors in printing are possible) please try printing without the PKD–1. If printing is OK without the PKD–1 please contact your dealer. We will offer you a new PKD–1 in exchange for your old one.

Installing the Software on PC Hard Disk

The program is delivered on a diskette and is copy protected with a dongle PKD–1. It must be present in parallel port when using Service software.

The program can also be installed on the hard disk, which is recommendable to obtain a maximum data access rate.

Keep the original diskette safe to enable upgrading of the program !

If you plan to use PCL Start service software, you must install it before installing Service software, see PCL Start installation instructions.

To install the new Service software program, follow the steps below:

1. insert the new Service software diskette into drive A: of your computer
2. start Windows, and open File Manager
   log into drive a: *type* **A:** *and press <Enter>*
3. start INSTALL.EXE and *type* ***C:*** *and press <Enter>*
   install Service software to drive C:

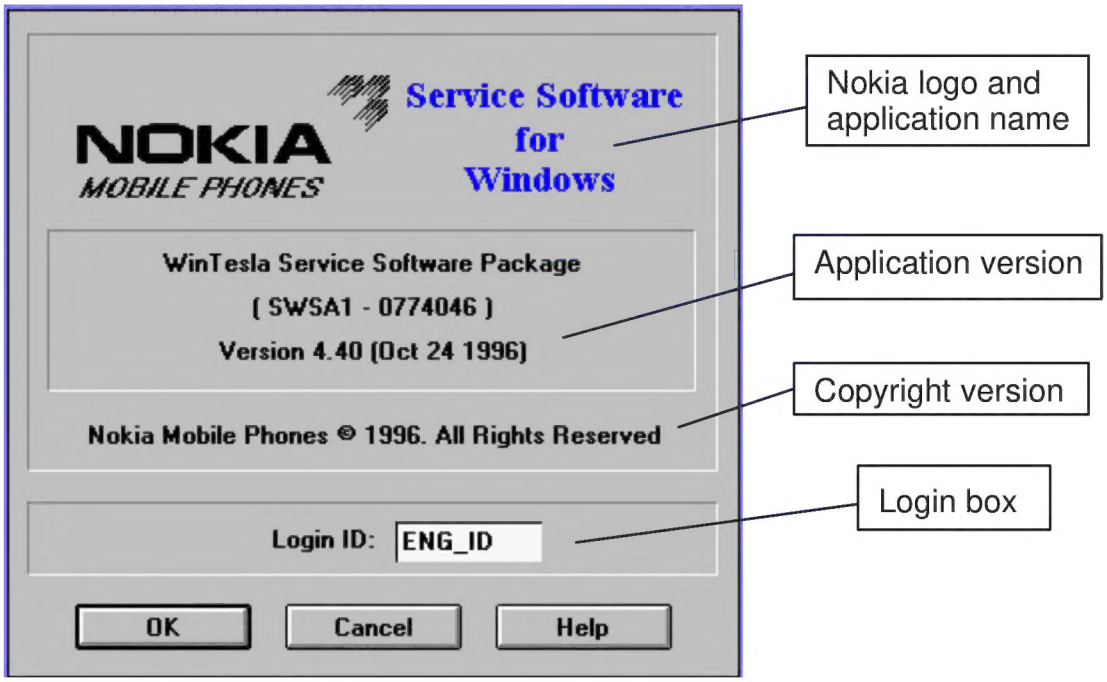
Common Properties of the User Interface

This chapter describes how the User Interface CLF must appear to the user.

The User Interface MUST be capable of being driven without the use of a mouse, as the service engineer rarely has space on the bench to use a mouse.

Login Dialog

When the Service Software application is invoked, by checking on the Service Software icon, the **Login** dialog box will be displayed on the screen.



Nokia logo and application name bitmap (–)

Displays Nokia logo and name of the application.

Application version static text (–)

Contains the name and version of the application.

Copyright notice static text (–)

Copyright is informed as: "**Nokia Mobile Phones (c) 1996. All Rights Reserved**".

Login Box edit box (–)

The user Login ID edit box, where the user enters his faultlog user name. (See Faultlog User Guide)

OK button (default key)

The user name is stored in memory and the dialog box is closed. When the dialog box is closed, the application starts.

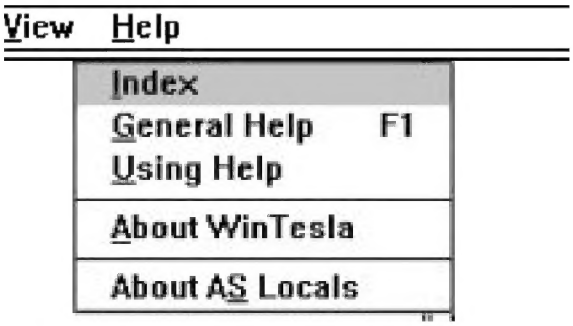
Cancel button (ESC)

The Dialog box is closed and application is started, but the Faultlog feature is disabled.

Help button (F1)

Activates the Windows Help application and displays context sensitive Help.

Main Window



Title bar

The *title bar* is located at the top of the window.

A title bar contains the following elements:

- Application Control–menu button
- Maximise button
- Minimise button
- Name of the application
- Restore button

The properties of these elements and their usage is described in Ref 3– Microsoft Windows Version 3.1 Users Guide chapter one (Windows Basics) and chapter two (Application Basics).

Menu bar

The *menu bar* is below the title bar and contains all available menu selections. The menu bar is a dynamic element and is dependent on the dongle type fitted, and whether a phone is connected.

Underlined characters in menu names and options indicates that the menu selection can be done by pressing *Alt+* *underlined character*. Options can also be selected by activating menu bar with *Alt–* key (or *F10* key) and using arrow–keys to highlight the desired menu. In that case, selection is done by pressing *Enter*.

Menus can also be selected by using the mouse as described in Ref 3–Microsoft Windows Version 3.1 Users Guide

Status bar

The *status bar* is displayed at the bottom of the Service Software main window. The status bar contains information about the menu selections and events.

The left area of the status bar describes the actions of menu items as the user uses the arrow keys to navigate through menus.

The status bar texts are explained in detailed in each of command's description.

The right areas of the status bar indicate which of the following keys are latched down:

Indicator	Description
USER	Entered Login ID.
CAP	The Caps Lock key is latched down.
NUM	The Num Lock key is latched down.
SCRL	The Scroll Lock key is latched down.

Tool bar

The *tool bar* is NOT defined and will not be implemented until specified by this document.

Menu Bar

The Service Software package will have two menu bar configurations. The first, is an abbreviated version that contains the minimum number of menus that allows package configurations when a phone is NOT connected. The second is described below:

The menu bar MUST only contain the follow menus for the Service Software package when a phone is connected:

- Product*
- Configure*
- Tuning
- Testing
- Software
- Dealer
- View
- Help*

* – always displayed, even if no phone is connected.

A menu is broken down into sections that are indicated with menu separators. Each sections identifies a logical difference from itself and other sections, i.e. between transmitter and receiver. Any items that are required to be added to a menu lists will be added on the bottom of the appropriate menu section list. If a new item is to be added which is common to two or more phone types, then that menu item will become a common menu item.

The menu lists will use the Microsoft [...] symbol after an item name to indicate that selecting that item will NOT initiate an operation immediately, i.e. a dialog box will be displayed for the user to select options or type in data and press the OK button before the operation is performed.

Product

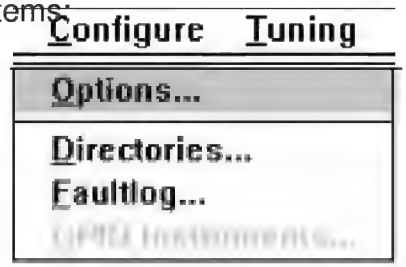
The Product menu contains the following menu items:

- New Ctrl+R
- Open...
- Close
- Initialize
  - Normal Mode F5
  - Local Mode Shift+F5
- Faultlog
  - Activate Faultlog... F9
  - Edit Faultlog...
- Exit Alt+F4

Configure

The Configure menu contains the following items:

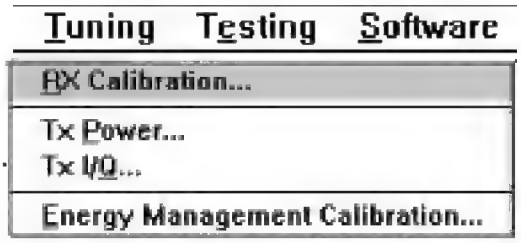
- Options...
- Directories...
- Faultlog...
- Phone Type Specific configuration items (where applicable)



Tuning

The Tuning menu contains the following menu sections:

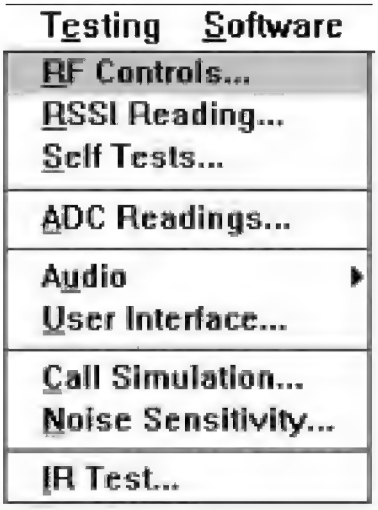
- RX Calibration...
- Tx Power...
- Tx I/Q...
- Energy Management Calibration...



Testing

The Testing menu contains the following sections:

- RF Controls...
- RSSI Reading ...
- Self Tests
- ADC Readings
- Audio
- User Interface
- Call Simulation
- Noise Sensitivity...
- IR Test



Software

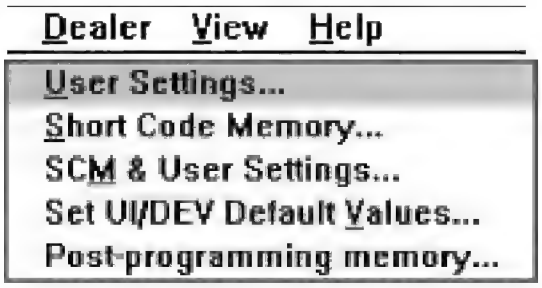
The Software menu contains the following menu sections:

- Product Profile...
- Start Up Self–tests...
- Set Factory Values
- Phone Identity...
- Production Data Edit...
- Flash Phone...

Dealer

The Dealer menu contains the following menu sections:

- User Settings...
- Short Code Memory...
- SCM & User settings ...
- Set UI/DEV Default Values ...
- Post–programming memory...



View

The View menu contains the following sections:

- Quick/RF Info...
- Phone Identity...

Phone Identity Window

The Phone Identity window should contain, as a minimum, the following data:

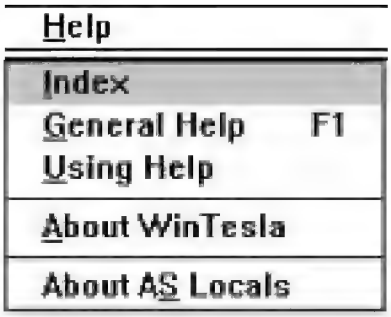
- Software Version(s)
- Hardware Version(s)
- Serial Number(s)
- Product Code

This window will only be used as a display window and therefore will not allow editing of the displayed data. This window will not contain any controls other than a scroll bar.

Help

The Help menu contains the following menu items:

- Index
- General Help
- Using Help
- About WinTesla
- About AS Locals



Mouse Cursors

The standards Windows pointer will be used as the mouse cursor.

During time consuming tasks e.g. communication to phone, an hour glass will be shown informing the user that a task is in progress. The application uses the hour glass cursor to inform user that the application has taken the control and any actions from user will be ignored.

When a function is initiated, the hour glass will be displayed and when the function has finished the mouse pointer will return to normal.

Reserved Keys

The following Hot keys and Short Cut keys are reserved either as Microsoft standard keys or as part of the Common Look and Feel specified by this document.

Short Cut Function Keys

Key by	Description	Defined
F1	Context Sensitive Help	Microsoft
F5	Normal Mode	NMP
Shift+F5	Local Mode	NMP
F9	Activate Faultlog	NMP
F10	Goto Menu Bar	Microsoft
Ctrl+F4	Close Active Window	Microsoft

Alt Hot Keys

Key by	Description	Defined
Alt+F4	Exit Active Application	Microsoft
Alt+H	Help	Microsoft

Ctrl Hot Keys

Key by	Description	Defined
Ctrl+N	File – New	Microsoft
Ctrl+O	File – Open	Microsoft
Ctrl+P	File – Print	Microsoft

Ctrl+R	Product – New	NMP

Shift Hot Keys

Key by	Description	Defined
Shift+F5	Local Mode	NMP

Key Strokes

Key by	Description	Defined
Alt+P	Product Menu	NMP
Alt+P,N	New	NMP
Alt+P,O	Open	NMP
Alt+P,C	Close	NMP
Alt+P,I	Initialize Pop–up	NMP
Alt+P,I,N	Normal Mode	NMP
Alt+P,I,L	Local Mode	NMP
Alt+P,F	Faultlog Pop–up	NMP
Alt+P,F,A	Activate Faultlog	NMP
Alt+P,F,E	Edit Faultlog	NMP
Alt+P,X	Exit Application	NMP
Alt+C	Configure	NMP
Alt+C,O	Option	NMP
Alt+C,D	Directories	NMP
Alt+C,F	Faultlog	NMP
Alt+C,G	GPIB instruments (disabled)	NMP
Alt+T	Tuning Menu	NMP
Alt+T,R	RX Calibration	NMP
Alt+T,X	Tx Power	NMP
Alt+T,Q	Tx I/Q	NMP
Alt+T,E	Eanergy Management calibration	NMP
Alt+E	Testing Menu	NMP
Alt+E,F	RF Controls	NMP
Alt+E,R	RSSI Reading	NMP

Alt+E,S	Self Tests	NMP
Alt+E,A	ADC Readings	NMP
Alt+E,U	Audio	NMP
Alt+E,U,I	Audio Internal	NMP
Alt+E,U,E	Audio External	NMP
Alt+E,U	User Interface	NMP
Alt+E,C	Call Simulation	NMP
Alt+E,N	Noise Sensitivity	NMP
Alt+E,I	IR Test	NMP
Alt+S	Software Menu	NMP
Alt+S,P	Product Profile	NMP
Alt+S,S	Start–up Self Tests	NMP
Alt+S,V	Set Default Values	NMP
Alt+S,I	Phone Identity	NMP
Alt+S,P	Production Data Edit	NMP
Alt+S,F	Flash Phone	NMP
Alt+D	Dealer Menu	NMP
Alt+D,U	User Settings	NMP
Alt+D,S	Short Code Memory	NMP
Alt+D,M	SCM & User Settings	NMP
Alt+D,V	Set UI/DEV Default Values	NMP
Alt+V	View Menu	NMP
Alt+V,Q	Quick/RF Info	NMP
Alt+V,P	Phone Identity	NMP
Alt+H	Help Menu	Microsoft
Alt+H,I	Index	Microsoft
Alt+H,G	General Help	Microsoft
Alt+H,U	Using Help	Microsoft
Alt+H,A	About WinTesla	NMP
Alt+H,S	About AS Locals	NMP

Help Functions

The Help User Interface will be the standard Windows help tool called WinHelp.

The context sensitive help is activated with **F1**–key. Help contains also Using Help which describes how to use help facility. Refer to the Windows manual for detailed description on the Windows Help.

Dialog boxes

The Service Software application uses many different dialog boxes. Dialog boxes are used to display data and prompt the user for input.

Dialog boxes are opened from menus or with shortcut keys. Dialog boxes have different properties but some features are common.

All service dialog boxes must be modal, that is, the user will not be able to start another operation without first closing the present dialog box.

All dialog boxes will contain the following entities:

– Help button

– Title bar

– At least one button other than Help

– Application Control–menu Button

Common Dialog boxes

This sections describes the common dialog boxes used in the Service Software package, and the context in which they will be used.

Note Message Box

When the user has made an illegal selection, a *note message box* dialog will be opened and message text is displayed. The message box is also opened when the program has some information for the user. The size of the dialog box may vary. An information dialog box is recognized by the **!**–icon.

The dialog box will also contain an OK button and a Help button.

OK button (default key):

Acknowledge displayed information and continue. The dialog box is closed after selection.

Help button (Alt+H):

Opens context sensitive help as F1–key does.

Query Message Box

Confirmations and questions are asked in *a query message box*. A query dialog box is recognized by the **?**–icon.

The dialog box will also contain a Yes button, a No button, and a Help button.

Yes button (Alt+Y or Y) (default key):

Accepts confirmation or question.

No button (Alt+N or N):

Denies confirmation or question.

Help button (Alt+H):

Opens context sensitive help as F1–key does.

The buttons may also be OK and Cancel. The operation of these buttons are the same as in the Note dialog box.

Error Message Box

Error message dialog boxes use the Stop–icon. When a “Stop”–dialog box is shown, the current operation is terminated.

The dialog box has a description about the failed operation and reason. Pressing F1 (Help) application opens the appropriate help topic that gives information about recommended actions.

The dialog box will also contain an OK button and a Help button.

OK button (default key):

Acknowledges displayed information and terminate current operation. The dialog box is closed after selection.

Help button (Alt+H):

Open context sensitive help as F1–key does.

Custom Dialog boxes

All custom dialog boxes will contain the predefined buttons as defined below in the section – *Buttons.* However, it is recognised that features may require additional button types, but the addition of these non–standard buttons should be carefully considered to minimise any inconsistencies between implementations.

The buttons will be positioned down the right–hand side of the dialog boxes. The default action will be **OK**, except where that default action could result in an irretrievable failure.

All tuning dialogs that contain tuning results, will display the old tuned data read from the phone before the tuning was performed, as well as the newly tuned data.

List boxes will be used to display lists of data, such as tuning data, test results etc.

The use of Radio buttons should be limited and carefully considered. The use of radio buttons defines the number of possible choices available to the user, which may be acceptable for one project, but not for another.

Buttons

All buttons must be the Microsoft style of buttons.

In general, the default button will be the action button, the Close button or the Yes button, but this will depend on the context of the dialog box that the button is associated with.

(action) button:

Accepts and validates entered settings and values and closes the dialog. If the values have not been changed, then no action will be taken. The status bar will reflect the status. The user should only be queried, if the settings or values accepted will over–write data that CAN NOT be reproduced.

A greyed **OK** button indicates that settings selected by the user are not acceptable.

Close button:

Closes the current dialog box. Does not send or store anything and closes the dialog. The Close button is only used for dialogs that do not set or change any data.

Cancel button (Esc):

Cancel operation. Does not send or store anything and closes the dialog box.

A greyed **Cancel** button indicates that it is not possible to quit from this dialog box.

Yes button (ALT+Y or Y):

Replies Yes to a question asked of the user.

No button (ALT+N or N):

Replies No to a question asked of the user.

Help button (ALT+H):

Opens context sensitive help as F1–key does.

Reporting Status

The status bar will be used to report the present status to the user. When a feature is initiated, the status bar will be updated with a brief description of the function. The status bar will also be updated at key points in a time consuming function.

If an error is to be reported to the user, it will be displayed in the status bar as well as displayed in a common error dialog box. This will mean the user is not delayed from progressing on to the next operation unless an error occurs, in which case, the user will have to acknowledge the error by pressing the OK button.

NSE–1/3/6 and NSM–1 FEATURES

Menu bar

After Sales SW's menus follow the menu structure specified in WinTesla User Interface Specification. This specification will describe functionality that differs from WinTesla specification.

Product

New command

Activation	Status Bar Text
Alt, P, N Ctrl+R	Rescan a new phone

If phone is changed (with same phone type only serial number is changed) phone will be initialised to local mode. If phone is changed to different phone type the current DLLs are unloaded and new ones are loaded for that phone.

If the Quick/RF Info view is open, window will be automatically updated.

If Phone Information view is open, it will be automatically updated.

NOTE: When different type of phone is changed user should select Product/New, so that application recognises phone type change and loads correct menu.

Open... command

Activation	Status Bar Text
Alt, P, O	Force load phone specific functionality

Phone is set to local mode.

Initialise... command

Activation	Status Bar Text
Alt, P, I Opens a submenu	

Normal Mode

Activation	Status Bar Text
Alt, P, N	Initialises phone to normal mode
F5	

When normal mode has been activated or program has been started, self–test results will be asked from MCU. If any fault was found in the tests, an error message is shown. If normal mode has been set successfully (no self test error has been found), and paging listening has been started, the used AFC value is requested from MS.

Initialisation routine checks phone's cellular type and if unsupported phone is detected, application unloads the DLLs.

The After Sales SW sets automatically the MS state to normal mode when needed.

If phone identification view is open, window will be automatically updated. Also if RF Information Window is open it will be updated to quick info view.

NOTE: When phone is changed to but phone type does not change, user may select Product/Initialise/Normal Mode instead of Product/New.

Local Mode

Activation	Status Bar Text
Alt, P, L	Initialises phone to local mode
Shift+F5	

Selection will change the MS state to *local*. When user selects item from Testing or Tuning menus, the After Sales SW software will change automatically the MS state to local.

The After Sales SW sets automatically the MS state to normal mode when needed.

Also if quick info view is open it will be updated to RF Information view.

Band... command

This menu selection is available only for NSM–1 phones.

Activation	Status Bar Text
Alt, P, B	Opens a submenu which contains following options:

GSM

Activation	Status Bar Text
Alt, P, B, G	Set phone to GSM band.

PCN

Activation	Status Bar Text
Alt, P, B, P	Set phone to PCN band.

Tuning

The tuning menu offers functions for ME adjustments.

RX Calibration... command

Activation	Status Bar Text
Alt, T,R	Open RX Calibration dialog box

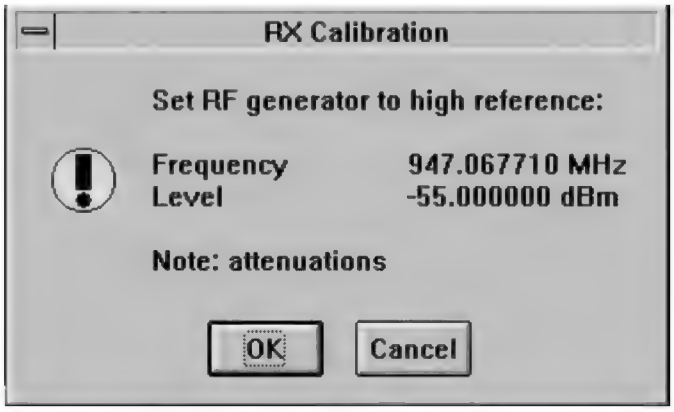
Starts RX calibration.

The next automatic selections are made when this tuning function is activated:

- Phone is set to local mode
- Update RF information window

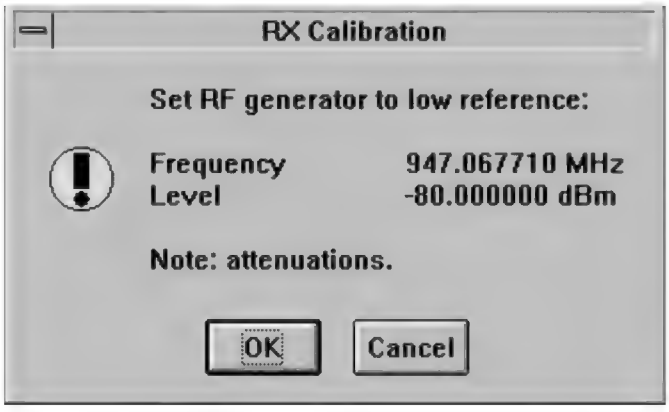
The measurement is started automatically when RX calibration is entered. The measurement is done in five steps:

1. User is requested to put signal generator to high input level (read from .INI file).



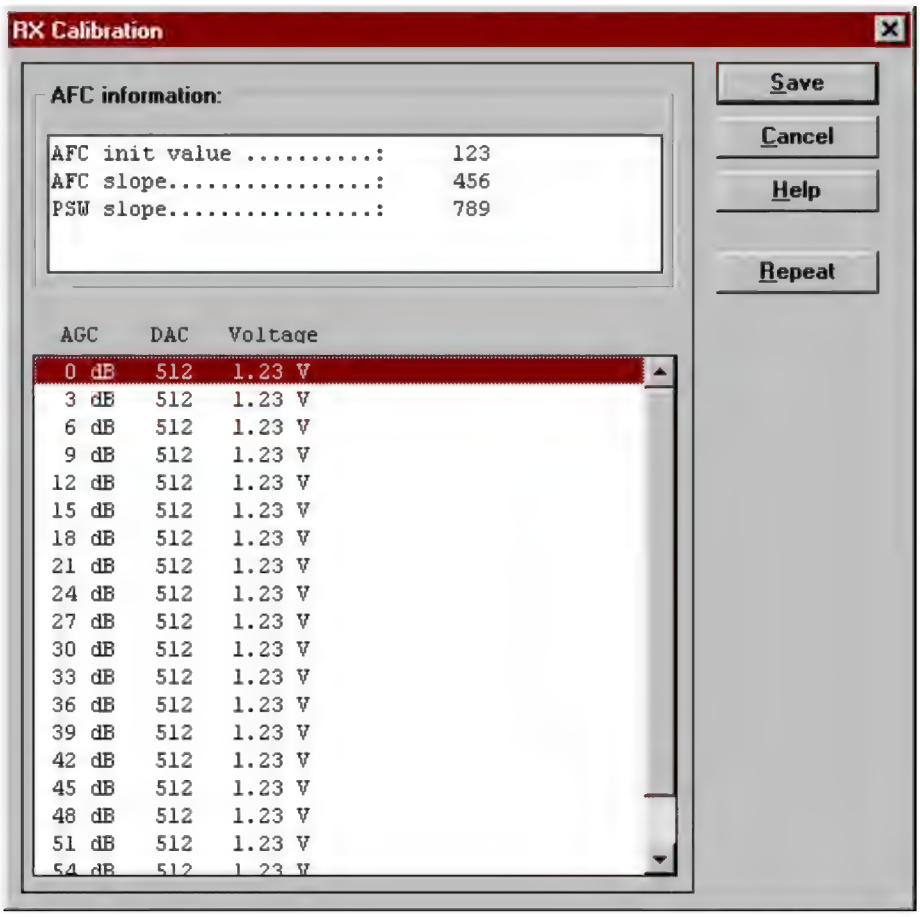
2. Measurement with high input level is executed

3. User is requested to put signal generator to low input level (read from .INI file).



4. Measurement with low input level is executed

5. The **RX Calibration** dialog will be updated when previous steps are done.



Dialog mode: **modal**

RX Calibration dialog has the following items:

AFC information box:

Shows AFC init value, AFC slope and PSW slope values.

AGC List box (ALT+A):

AGC, DAC, Voltage and Difference. The difference column shows the difference between tuned DAC values and mean straight line calculated from part slopes in dBs (see /1/). This can be calculated when all measurement results have been received from phone.

Repeat button (ALT+R):

The measurement can be started again by pressing this button.

Save button (ALT+S):

Dialog is closed and tuning *is saved* to phone.

Cancel button (ESC):

Dialog is closed and tuning *is not saved* to phone.

When calibration is ended, the DAC value checking is made and if it is not succeeded, error message is shown.

When exit is made, the next selections are set to the values which were selected before this adjustment.

Operation Mode

Update RF Information window

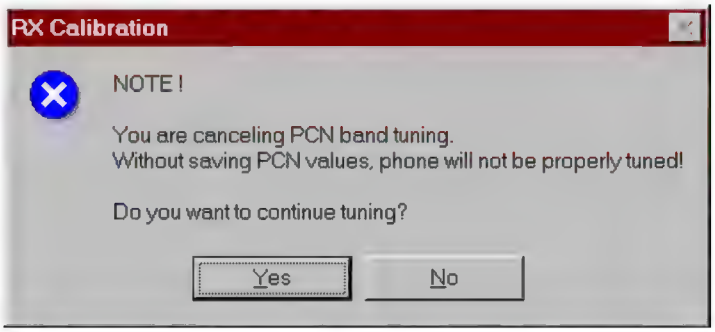
The exit and the use of AGC–control values is done same way as exit from power level tuning and power coefficient use:

NSM–1 Specific Features

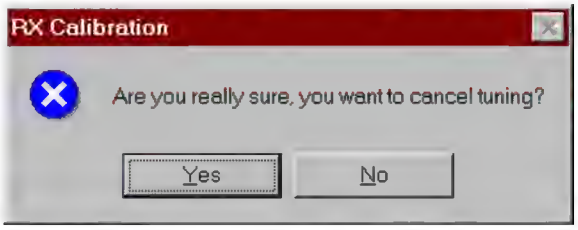
When tuning NSM–1 phones both bands must be tuned. Tuning is always started in GSM band. If current band is PCN, user is asked to confirm band change or cancel tuning with following dialog.

If PCN band was selected, when tuning was selected, tuning is automatically continued in PCN band, after saving tuning values in GSM band. If tuning was started in GSM band, user is asked to continue tuning in PCN band.

If user wants to cancel tuning without saving values in PCN band, there is two confirmation dialogs to make sure that user does not accidentally cancel tuning in PCN band.


RX Calibration
NOTE !
You are canceling PCN band tuning.
Without saving PCN values, phone will not be properly tuned!
Do you want to continue tuning?
Yes
No

To cancel tuning answer No to first dialog and Yes to second dialog.



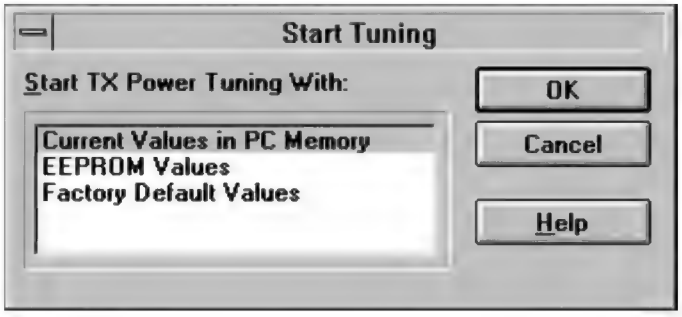
When dialog is closed original band is selected.

Tx Power... command

Activation	Status Bar Text
Alt, T,X	Open TX Power Tuning dialog box

Starts TX power tuning.

User is first requested to select with which values tuning is started in **Start Tuning** dialog.



Start Tuning dialog has following items:

Start Tuning With list box (ALT+S):

Current Values in PC memory

Tuning values are load from program's internal memory.

EEPROM Values

Tuning values are load from ME's EEPROM.

Factory Default Values

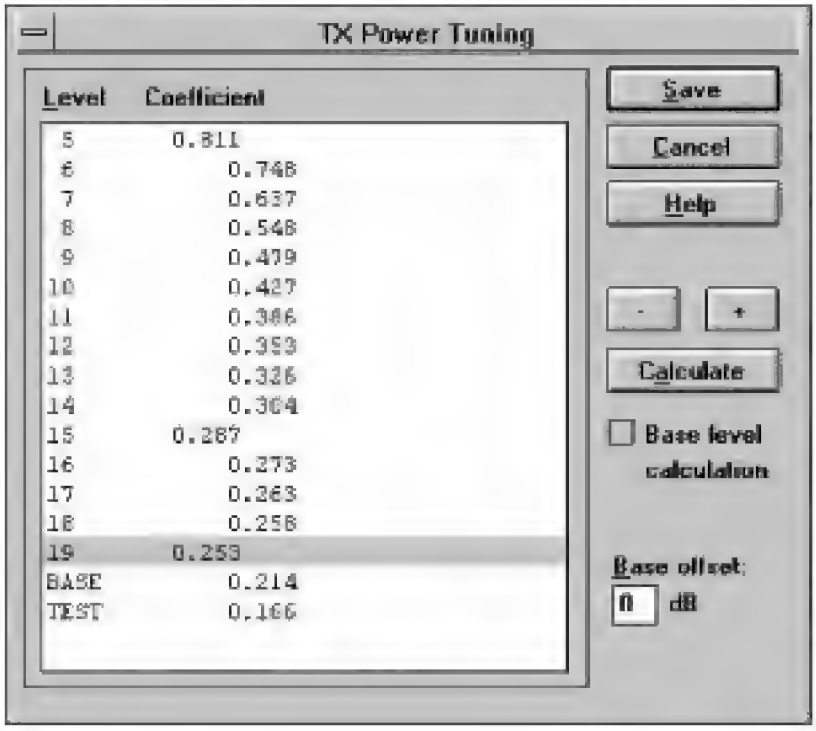
Tuning values are load from ME's flash.

The next automatic selections are made when this tuning function is activated:

the lowest (19) power level is selected

Operation mode = TX pulsed

The **TX Power Tuning** dialog will be activated automatically after value selection.



NOTE!
NSE–6:
Base offset is 25 dB

Dialog mode: **modal**

TX Power Tuning dialog has following items:

Power Level & Coefficients list box (ALT+L):

The power is presented in GSM or PCN values. The base power is selected automatically when the dialog is opened. The test value is not saved to the EEPROM. The test value can be changed during tuning as other power coefficients and the program remembers its value when tuning function is activated later again.

If there is more power levels in the phone that can fit into window the window is scrollable. When phone is initialised the program asks the number of power levels used in the phone.

Only three power coefficients (highest, third smallest and lowest) are needed to tune (left justified Coefficients) and the rest of them are calculated.

The tuning position is highlighted and can be tuned with +/– keys or left/right cursor keys.

Calculate button (ALT+C):

The calculation is activated with this button. The power coefficients which are calculated from the tuned coefficients are displayed on the different columns than the others. All values can be tuned if needed.

Base level calculation check box:

If this box is checked the base level is calculated.

+/– buttons (+/– and left/right cursor keys):

+ and – buttons will cause power changing by 0.25dB steps. When these keys are used the coefficient value is updated on the tuning window.

Save button (ENTER):

Dialog is closed and tuned values are *saved* to phone.

Cancel button (ESC):

Dialog is closed and tuning *is not saved* to phone.

When selections are used, the power value checking is made and if it is not succeeded, error message is shown. The test checks that all power coefficients are in descending order (same order than power levels).

If the power tuning function is ended and EEPROM values are not received or EEPROM fault is noticed, an error message is shown.

When all power coefficients have such values that they don't cause any error messages, save can be made. The last used tuning power is in use after exit.

The next automatic selection is made when this tuning function is ended:

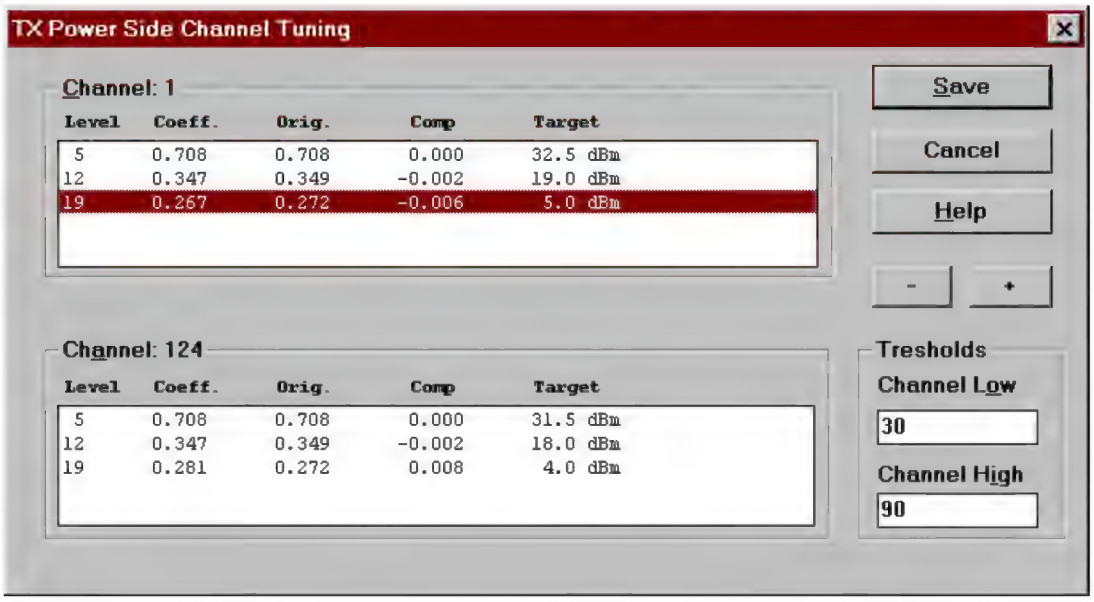
Operation Mode = RX pulsed

TX Power Side Channel Tuning

This feature is available only for NSM–1 phones.

If user has PKD–1 dongle, then tuning is started automatically with EEPROM values. With other dongles the **Start Tuning** dialog is opened, see Tx Power... command.

With the **TX Power Side Channel Tuning dialog** user can tune lower and higher side of band.



NOTE: This is a screen sample, actual values may differ.

Dialog mode: **modal**

TX Power Side Channel Tuning dialog has following items:

Channel: low group (low = tuning channel for lower side):

Level Coeff. Orig. Comp Target list box (ALT+C):

When one of the levels is selected, low channel and selected power level is set to phone for tuning.

Channel: high group (high = tuning channel for higher side):

Level Coeff. Orig. Comp Target list box (ALT+A):

When one of the levels is selected, high channel and selected power level is set to phone for tuning.

Thresholds group:

Channel Low read only edit box (ALT+O):

Shows lower threshold channel.

Channel High read only edit box (ALT+I):

Shows higher threshold channel.

+/– buttons (+/– and left/right cursor keys):

+ and – buttons will cause power changing by 0.25 dB steps. When these keys are used the coefficient value is updated on the tuning window.

Save button (ENTER, ALT–S):

Dialog is closed and tuned values are *saved* to phone.

Cancel button (ESC):

Dialog is closed and tuning *is not saved* to phone.

When dialog is closed original band is selected.

MTC and R&D specific features

Edit boxes **Channel Low** and **Channel High** in **Threshold** group are editable.

Tx I/Q... command

Activation	Status Bar Text
Alt, T,Q	Open TX I/Q Tuning dialog box

This function is used for tuning TX I and Q branch DC offset, amplitude difference and phase difference.

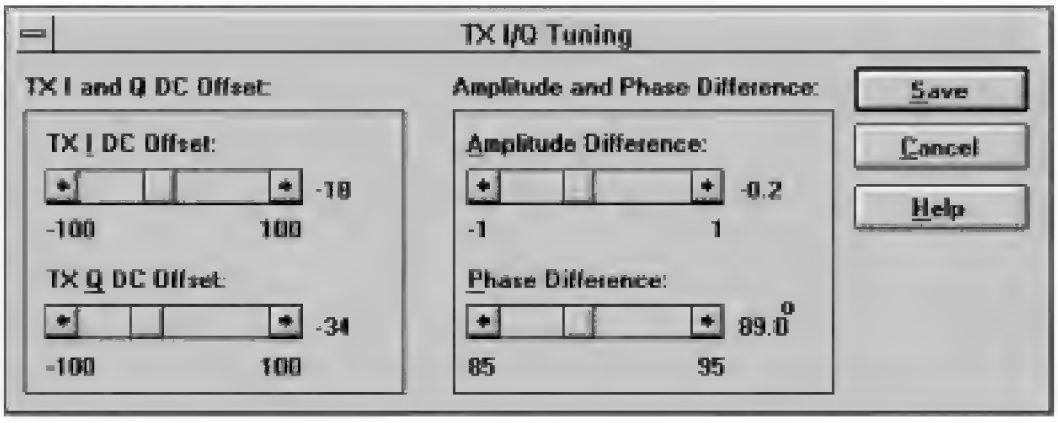
The function opens same **Start Tuning** dialog as with TX Power Tuning.

The next automatic selections are made when this function is activated:

Operation Mode = TX pulsed

Update RF Information window

The **TX I/Q Tuning** dialog is opened.



Dialog mode: **modal**

TX I/Q Tuning has following items:

Tune TX I DC Offset scroll bar (ALT+I):

The DC Offset is shown as percents (%) from the ± maximum value. 0% means that there is no DC. The value range is –100%...100%. The value is rounded to the nearest integer value.

Tune TX Q DC Offset scroll bar (ALT+Q):

The operation of this function is the same as one above, except with this selection the Q branch DC Offset is tuned. The value range is –100%...100%. The value is rounded to the nearest integer value.

Tune Amplitude Difference scroll bar (ALT+A):

When this selection is made user can increase or decrease the amplitude difference within 0.1 dB steps. The value range is –1...1.

Tune Phase Difference scroll bar (ALT+P):

When this selection is made user can increase or decrease the phase difference within 0.5° steps. The current phase difference is shown on the tuning window with numbers and bar figure. The value range is –85...90.

Save button (ENTER):

Dialog is closed and tuning *is saved* to phone.

Cancel button (ESC):

Dialog is closed and tuning *is not saved* to phone.

After each value change the new value is sent to the phone.

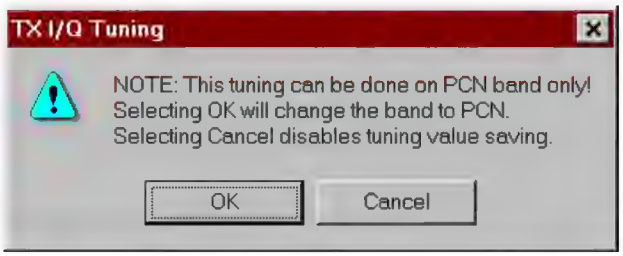
The next automatic selection is made when TX I / Q tuning function is ended:

Operation Mode = RX pulsed

Update RF Information window

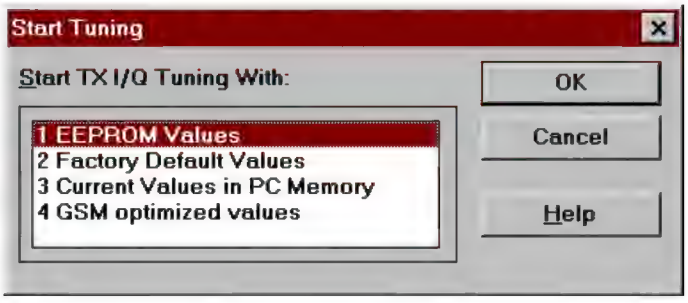
NSM–1 Specific Features

Tuning values may be saved only in PCN band. When tuning is started in GSM band user is shown following dialog.


TX I/Q Tuning
NOTE: This tuning can be done on PCN band only!
Selecting OK will change the band to PCN.
Selecting Cancel disables tuning value saving.
OK
Cancel

If user selects OK, PCN band is selected and normal tuning is started with following **Start Tuning** dialog. If user selects Cancel, phone is tuned in GSM band but saving tuning values only saves them in PC memory.

If user has saved tuning values in PC memory in GSM band, then **Start Tuning** dialog has a new selection when tuning is done in PCN band.



If user selects **4 GSM optimised values**, then tuning is started with values that were saved earlier in GSM band. Note that this selection is available only in PCN mode and when GSM values have been saved to PC memory.

When dialog is closed original band is selected.

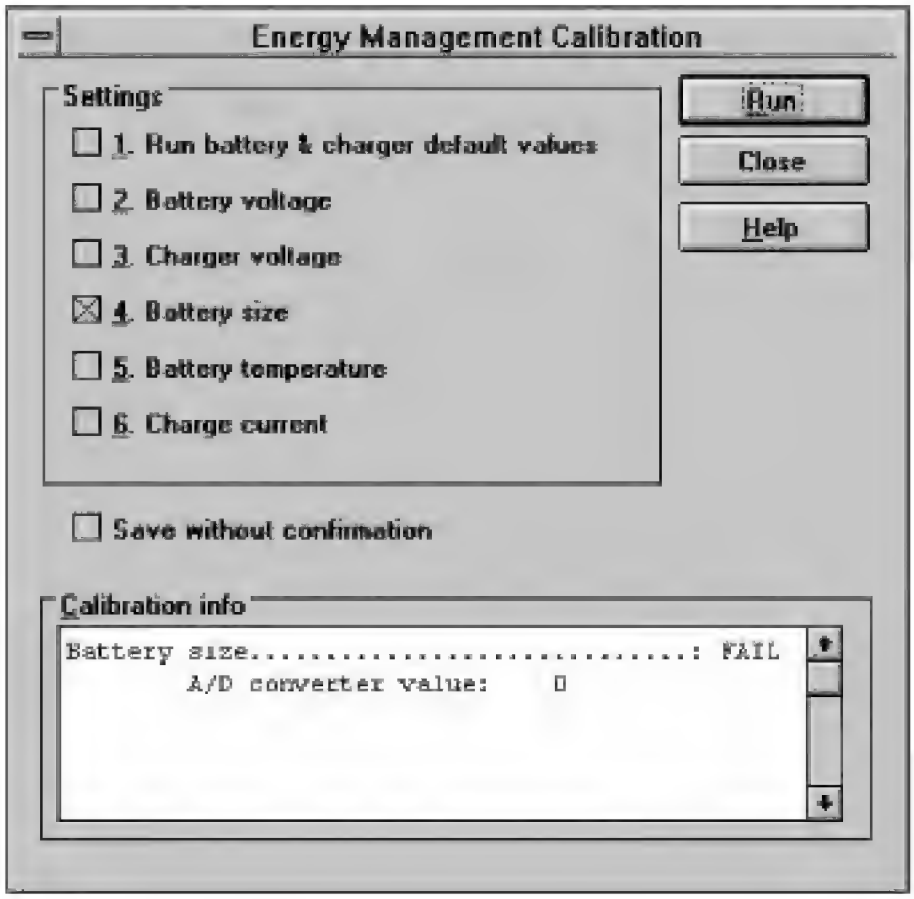
Energy Management Calibration... command

Activation	Status Bar Text
Alt, T,E	Calibrate Battery Voltage

This function is for battery a/d and charge current tunings.

Before battery a/d tuning is started a voltage setting request is shown to user (Set supply voltage to 10,5 V).

When external power is connected and user selects Yes to continue, the application displays the **Energy Management Calibration** dialog box:



Dialog mode: **modal**

Energy Management Calibration dialog has following items:

Settings group box:

Contains EM calibration setting checkboxes:

1. Run battery & charger default values checkbox (ALT+1):

Runs battery & charger default values to phone when selected

2. Battery voltage checkbox (ALT+2):

Calibrates battery voltage A/D value.

3. Charger voltage checkbox (ALT+3):

   Calibrates charge voltage A/D value.

4. Battery size checkbox (ALT+4):

   Calibrates battery size A/D value.

5. Battery temperature checkbox (ALT+5):

   Calibrates battery temperature A/D value.

6. Charge current checkbox (ALT+6):

   Calibrates charging current.

Save without confirmation checkbox (ALT+S):

When selected, all selected calibrations are saved to phone without confirmation, otherwise user must confirm every A/D value saving to phone.

Calibration info listbox (ALT+S)

Shows information about current calibrations.

Run button (ENTER):

All selected settings are executed.

Close button (ESC):

Dialog is closed.

Help button (ALT+H):

Context sensitive help.

After battery a/d tunings a voltage setting request is shown to user (Set supply voltage to 8.0 V).

Testing

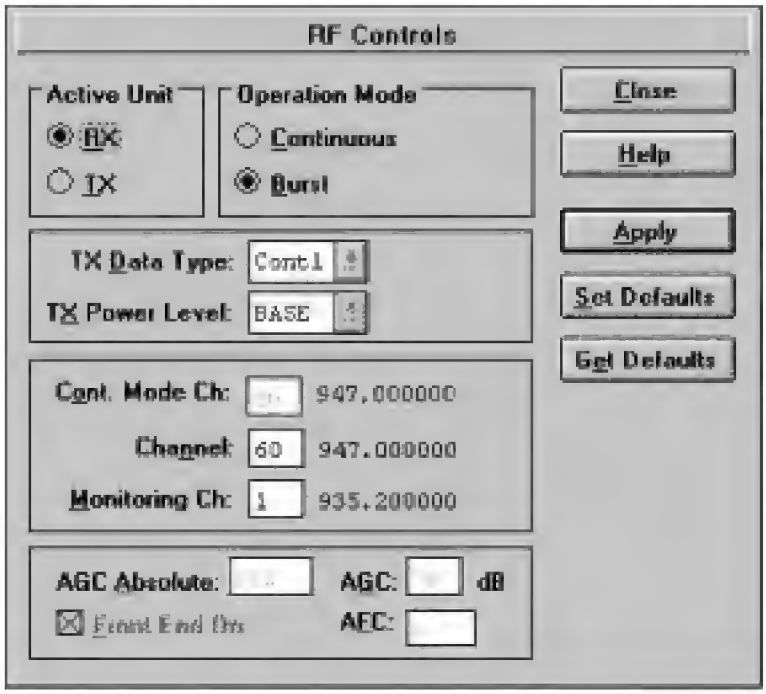
The Testing sub menu offers functions for ME testing.

RF Controls... command

Activation	Status Bar Text
Alt, E,R	Open RF Controls dialog box

This function is used for RF testing.

Command opens **RF Controls** dialog, which contains data for testing and adjustments.



Dialog mode: **modal**

RF Controls dialog has following items:

Active Unit group:

RX radio button (ALT+R):

When *RX* is selected, the next functions are made:

Data transmission is deactivated

TX power is deactivated

If operation mode is continuous,

– AGC is controlled

– RX continuous mode channel is activated

RF Information window is updated

The RX value is always given as default.

Note! Function is activated immediately, Apply is not needed.

TX radio button (ALT+T):

When *TX* is selected, the next functions are made:

Data transmission is activated

If operation mode is continuous,

– Operation mode is set to burst

RF Information window is updated

Continuous mode radio button is disabled.

Note! Function is activated immediately, Apply is not needed.

Operation Mode group:

Continuous radio button (ALT+C):

When *continuous* selection is used,

synthesiser is set to constant frequency

synthesiser channel number is as given with Continuous Mode Channel selection

transmitter power is not connected

if Active Unit is RX, AGC is controlled

Note! Function is activated immediately, Apply is not needed.

Burst radio button (ALT+B):

When *burst* selection is used,

synthesiser is controlled by using receiving/transmission/measuring synthesiser control sequence

synthesiser channel numbers are as given with Channel/Monitoring Channel selections

if Active Unit is TX, data (selected with TX Data Type) is sent and the TX power is connected

Note! Function is activated immediately, Apply is not needed.

TX Data Type drop list (ALT+D):

TX Power Level edit box (ALT+T):

With this value is possible to change the transmission power. The user can give the needed power value or select the test value, which is tuned with TX power tuning function. The test value is found at the end of the list.

TX Power have value *OFF* and is disabled (*greyed*) when active unit is RX. When the TX power is tuned with test value (smallest value) the TX Power has value *TEST*.

Channel edit box (ALT+H):

User can enter here channel number that is used for both transmission and receiving. The frequency of the selected channel is shown after selection.

Monitoring Channel edit box (ALT+M):

This field selects neighbour monitoring channel. The frequency of the selected channel is shown after selection.

Continuous Mode Channel edit box (ALT+C):

To this edit box user can type continuous mode channel which may have all channel numbers.

The used frequency depends on the Active Unit. If Active Unit is RX, then RX frequency is used, else TX frequency. The frequency of the selected channel is shown after selection.

AGC Absolute edit box (ALT+A):

This selection allows user to edit AGC absolute value (value from A/D converter).

When AGC Absolute value is changed the AGC dB value will be calculated depending on the AGC Absolute value.

Front End On check box:

This selection allows user to change whether the Front End amplifier is On or Off.

AGC edit box (ALT+G):

This selection allows user to edit AGC absolute value (value from A/D converter).

AGC value is shown only when its value is controlled by PC. When Active Unit has value RX and Operation Mode is continuous, AGC is controlled by PC except when next adjustment functions are activated:

RSSI Calibration

AFC Diagram

Apply button (ALT+A):

Accepts entered values and validates them. After validation application sends corresponding messages to ME. Closes dialog and updates Info Window.

Note! Active Unit and Operation mode are not send with because they are activated immediately.

Set Defaults button (ALT+S):

Sets current values as default Rf Controls values.

Get Defaults button (ALT+G):

Gets default Rf Controls values as current values.

The next automatic selection is made when Quick testing function is ended:

Active Unit = RX

Update RF Information window

The next table shows the dialog's properties on different situations:

ACTIVE UNIT = TX:

TX Data Type: Updated

AGC values: Greyed

Monitoring Channel: Greyed

OPERATION MODE = BURST:

TX Power Level: Updated

Continuous Mode Channel: Greyed

Channel: Updated

ACTIVE UNIT = RX:

TX Data Type: Greyed

TX Power Level: OFF, Greyed

OPERATION MODE = BURST:

AGC values: Greyed

Continuous Mode Channel: Greyed

Channel: Updated

Monitoring Channel: Updated

OPERATION MODE = CONT:

AGC values: Updated

Continuous Mode Channel: Updated

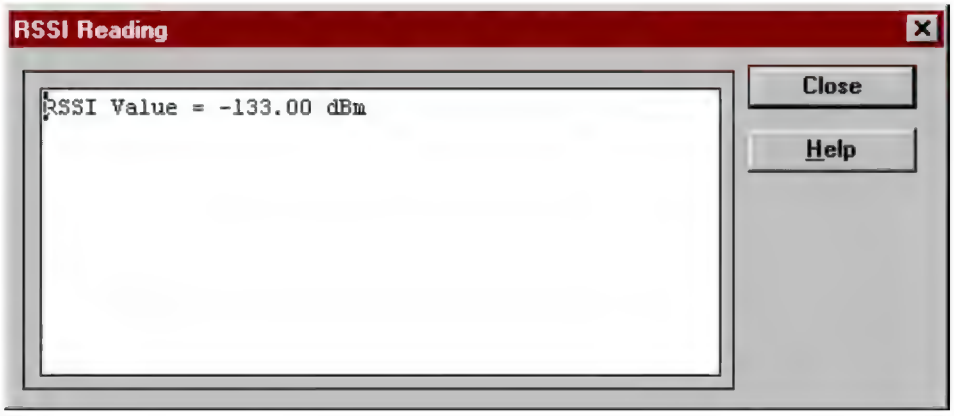
Channel: Greyed

Monitoring Channel: Greyed

RSSI Reading... command

Activation	Status Bar Text
Alt, E,R	read continuously RSSI value

Command opens RSSI Reading dialog:



Dialog mode: **modal**

RSSI value is read continuously until user presses ESC–key or Close button to cancel reading.

RSSI Reading dialog has following items:

Close (ENTER) button:

Closes the RSSI Reading dialog. Does not send anything to phone.

Help button:

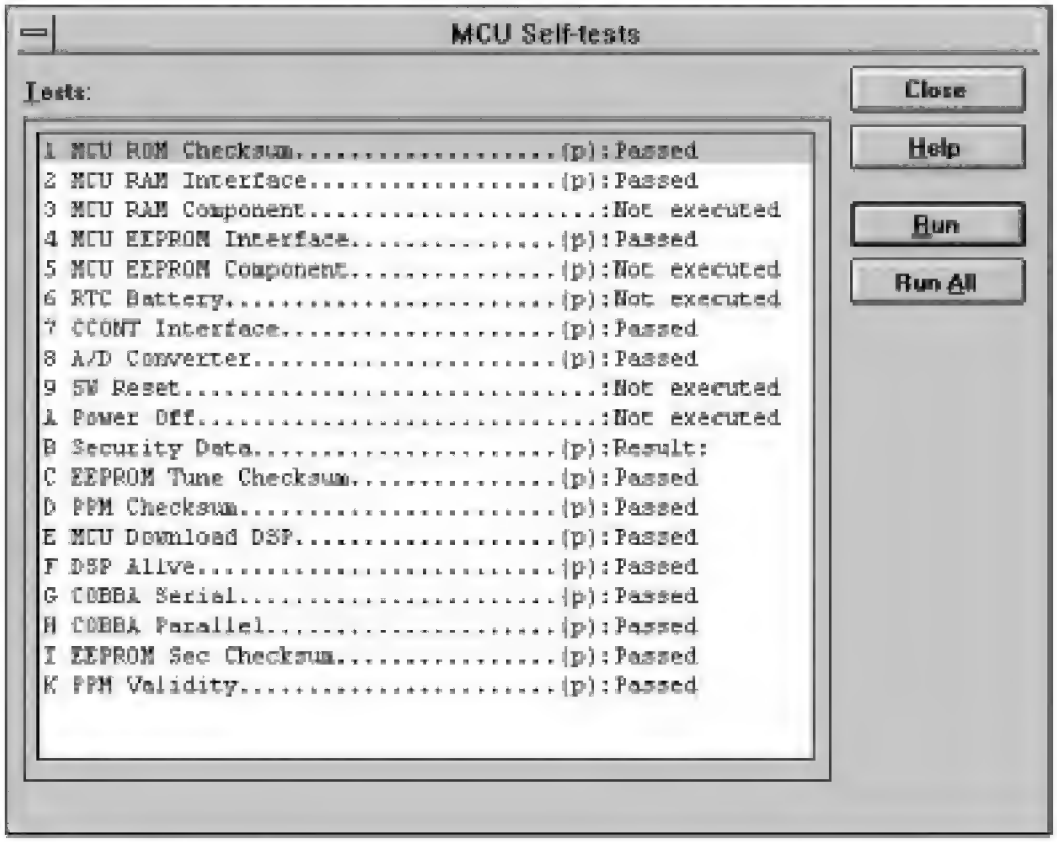
Context sensitive help.

Self Tests... command

Activation	Status Bar Text
Alt, E,S	Open MCU Self–tests dialog box

Command is used for reading self test results and running self tests.

When the selection is made, the test result is read from ME. The test result will be shown to the user within **MCU Self–test** dialog.



Dialog mode: **modal**

MCU Self–test dialog has following items:

Tests list box (ALT+T):

The field ”(p)” in the screen example means that the test is also run in power up. The field “/s)” means that this test is selectable one.

Test states are updated according to results received from the phone. Possible test states will be one of the next:

Passed

Failed

No response

Not executed

Not valid

RUNNING....

Note that power–off test have no values, because if test has been passed, power has been turned off. If power–off test fails a special error message window is shown. If no response is received to power off test message in a few seconds, the user is informed by special info window, where user is asked to turn the power on and then press the return key.

Note also that power–off test (if passed) turns power off and power should be reconnected by using the phones keypad after the successful test. After the power has been connected to phone, the normal start–up routines are made and the self–test results are shown in the MCU self–tests menu (i.e. all other than power–up self–tests are in *Not executed* state after the power–up routines).

Run button (ALT+R):

User can select desired test from list and hit **Run** button. When user selects test to be run the text *RUNNING...* is shown in test state field and test is run. When results are received the test state field is updated according to the result.

If no response was received in the defined time, a *error message box* will be shown and the test state is changed to *No response*. Phone is set to local mode if it is not already there.

Run All button (ALT+A):

User can run all listed tests. The text *RUNNING...* is shown in test state field and test is run. When results are received the test state field is updated according to the result. When state field is updated application moves to next test and repeats previous cycle. Phone is set to local mode if it is not already there.

Supported Self Tests

1 MCU ROM Checksum.....

2 MCU RAM Interface.....

3 MCU RAM Component.....

4 MCU EEPROM Interface.....

5 MCU EEPROM Component.....

6 RTC Battery.....

7 CCONT Interface.....

8 A/D Converter.....

9 SW Reset.....

A Power Off.....

B Security Data.....

C EEPROM Tune Checksum.....

D PPM Checksum.....

E MCU Download DSP.....

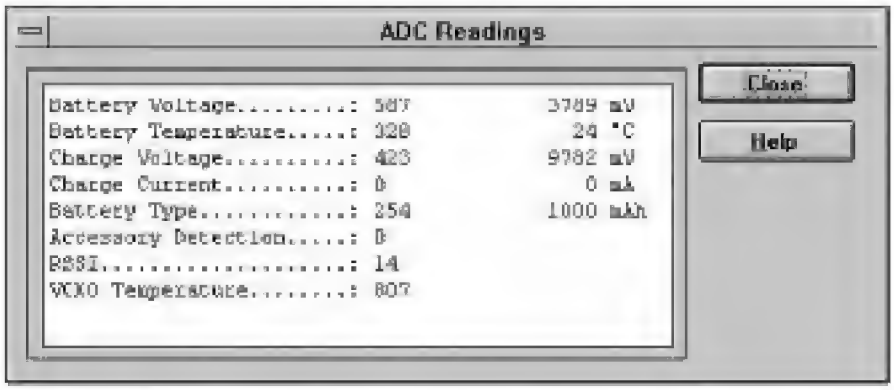
F DSP Alive.....
G COBBA Serial.....
H COBBA Parallel.....
I EEPROM Sec Checksum.....
J PPM Validity.....
K Warranty State.....

ADC Readings... command

Activation	Status Bar Text
Alt, E,A	Open ADC Readings dialog box.

Command is used to read and show A/D values from phone.

Command opens **ADC Readings** dialog.



Dialog mode: **modal**

ADC Readings dialog has static text field where measurements are updated to window every one second.

ADC Readings dialog has following items:

Close (ENTER) button:

Closes the ADC Readings dialog. Does not send anything to phone.

Help button:

Context sensitive help.

3.1.4.4.1 A/D Readings

Following a/d readings are measured:

Battery Voltage.....:

Battery Temperature.....:

Charge Voltage.....:

Charge Current.....:

Battery Type.....:

Acessory Detection.....:

Hook.....:

RSSI.....:

VCXO Temperature.....:

Audio... command

Activation	Status Bar Text

Alt, E,U

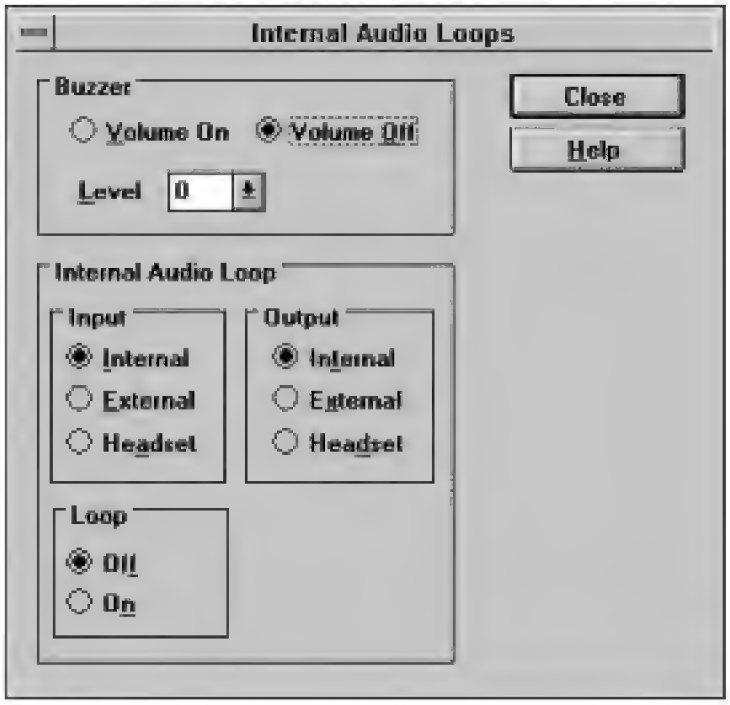
Opens a submenu which contains following options:

Internal Audio Loops

Activation	Status Bar Text

Alt, E,U,I Open Internal Audio loops dialog box.

Command is used for making internal audio loop tests in **Internal Audio Loops** dialog.



Dialog mode: **modal**

Internal Audio Loops dialog has following items:

Buzzer Volume group:

Next three different values can be selected for Buzzer volume:

Volume On radio button (ALT+V):

Turns buzzer on.

Volume Off radio button (ALT+O):

Turns buzzer off.

Level drop down list (ALT+L):

Sets level of a buzzer. Allowed range 0...127

Internal Audio Loop group:

Input group:

Next two different values can be selected for input:

Internal radio button (ALT+I):

Turns internal input.

External radio button (ALT+I):

Turns external input.

Headset radio button (ALT+A):

Turns headset input.

Output group:

Next two different values can be selected for output:

Internal radio button (ALT+T):

Turns internal output.

External radio button (ALT+X):

Turns external output.

Headset radio button (ALT+D):

Turns headset output.

Loop group:

Next two different values can be selected for loop:

Off radio button (ALT+F):

Turns audio loop off.

On radio button (ALT+N):

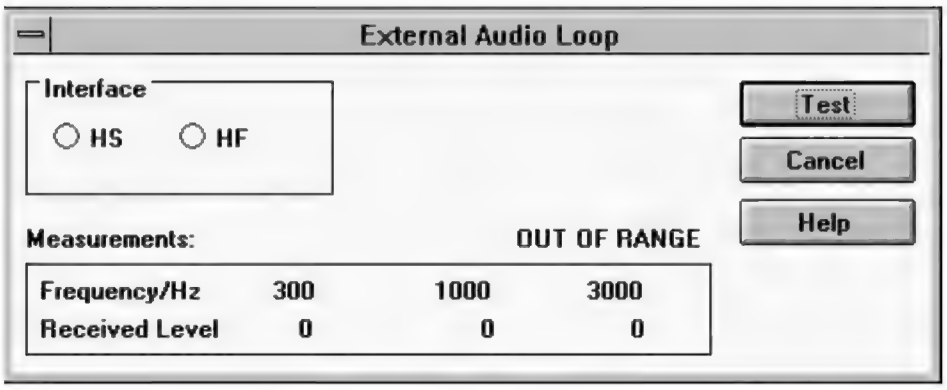
Turns audio loop on.

When dialog is closed with the Buzzer Volume is switched always off. Also internal audio loop is turned off.

External Audio Loops

Activation	Status Bar Text
Alt, E,U,E	Open External Loops dialog box

Command is used for making external audio loop tests in **External Audio Loops** dialog.



Dialog mode: **modal**

External Audio Loop dialog has following items:

Interface group:

Next two different values can be selected:

HS radio button:

Turns interface to HS (handset)

HF radio button:

Turns interface to HF (handsfree)..

Test button:

Starts the external audio loop test.

Cancel button:

Closes the External Audio Loop dialog. Sends nothing to phone.

Help button:

Context sensitive help.

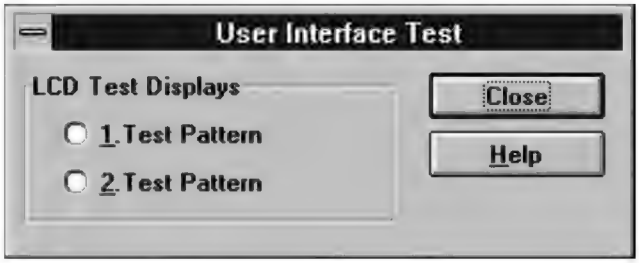
Measurements group:

Contains received levels for used frequencies. If received level is out of range that is displayed top of measurements group box.

User Interface... command

Activation	Status Bar Text
Alt, E,U	Open User Interface Tests dialog box

Command is used for making display tests in **Display Tests** dialog.



Dialog mode: **modal**

Display Tests dialog has following items:

1. Test Pattern radio button (ALT+1):

In test display 1 all indicators are displayed and the display is filled with chessboard letters.

2. Test Pattern radio button (ALT+2):

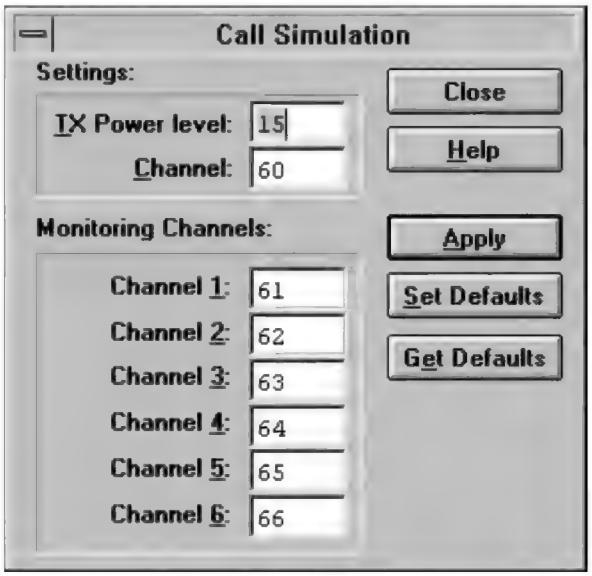
In test display 2 none of the indicators are displayed and the display is filled with inverse chessboard letters.

When dialog is closed the phone LCD display is cleared.

Call Simulation... command

Activation	Status Bar Text
Alt, E,C	Open Call Simulation dialog box

Command is used for making call simulation. Function opens **Call Simulation** dialog.



Dialog mode: **modal**

Call Simulation dialog has following items:

TX Power Level edit box (ALT+T):

All power levels can be selected. This updates same parameter as **TX Power Level** in the **RF Controls** dialog. Note that TEST value cannot be selected. If TEST value was in use when Call simulation menu selected, power level is changed to smallest value.

Channel edit box (ALT+C):

This tells the normal operating RF channel number. Normal GSM/PCN channel numbers can be selected. Same channel is used both for transmission and receiving. This updates same parameter as **Channel** in the **RF–Controls** dialog.

Channel 1,2,3,4,5,6 edit box (ALT+1,2,...):

Channels for monitoring are specified with these six selections. All GSM/PCN channel numbers can be used. If more than one selection has same number, the monitoring channel list (neighbour list) will have less than 6 selected channels. The minimum number of monitoring channels is one (all channels have same value). The monitoring channel can also have same value as normal operating channel.

The first monitoring channel updates same parameter as **Monitoring Channel** in the **RF–Controls** dialog.

Apply button (ALT+A):

Validates and sends entered data to ME.

Set Defaults button (ALT+S):

Sets current values as default Call Simulation values.

Get Defaults button (ALT+G):

Gets default Call Simulation values as current values.

Noise Sensitivity... command

Activation	Status Bar Text
Alt, E,N	Opens Noise sensitivity dialog box

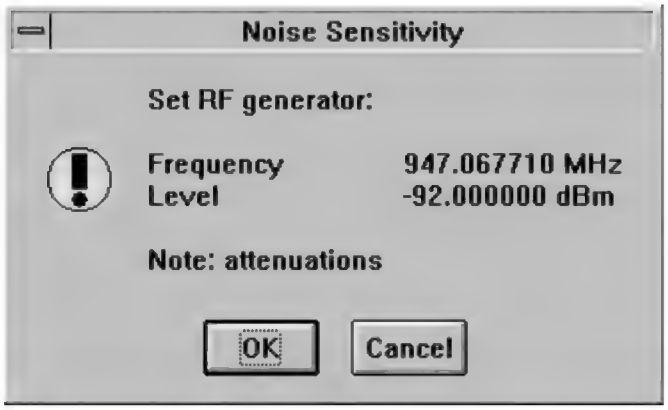
Command is used for noise sensitivity measurement.

The next automatic selections are made when this tuning function is activated:

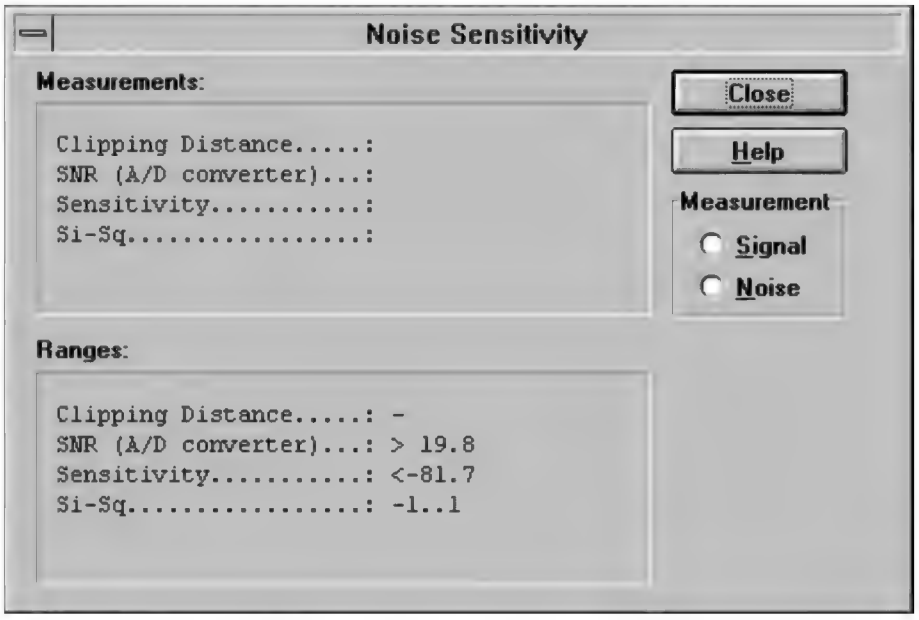
– Operation mode = RX cont

– AGC = 81 dB

Before function opens **Noise Sensitivity** dialog application prompts:



Then application opens **Noise Sensitivity** dialog:



Dialog mode: **modal**

Noise Sensitivity dialog has following items:

Measurements group:

Clipping distance is the difference to the signal clipping value. SNR is measured in AD converter.

The last value on the display is signal power difference between I and Q branch. The numbers are shown in 0.1dB accuracy. The error messages, "OUT OF RANGE", are shown only if the SNR and/or amplitude difference values are not acceptable.

Signal/Noise radiobutton (ALT+S/ALT+N):

When buttons are pressed, the RX I and Q burst data is asked, text "SIGNAL MEASURING..." or "NOISE MEASURING..." will come to the measurement group window. The power level value should be –92 dBm during signal measurement.

When signal data is received, distance to clipping signal level is shown as dBs on the display. When either signal or noise measurement results are received "MEASURING" text is removed and measurements are updated to screen. When both measurements (signal and noise) are done at least once, the signal to noise relation and difference are also shown on the display.

When exit is made, the next selections are set to the values which were selected before this adjustment.

– Operation mode

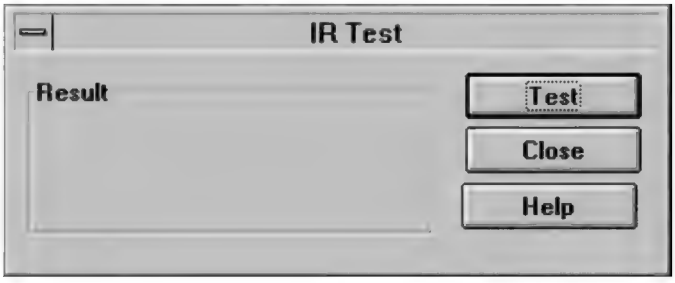
– AGC value

IR Test... command

NOTE! *Applies only to phones equipped with Infrared ports.*

Activation	Status Bar Text
Alt, E,I	IR module test

Command is used for making IR module test. Function opens **IR Test** dialog:



Dialog mode: **modal**

IR Test dialog has following items:

Result box:

Result can be OK/FAILED

Test (ENTER) button:

Starts IR Test.

Close button:

Closes the IR Test dialog.

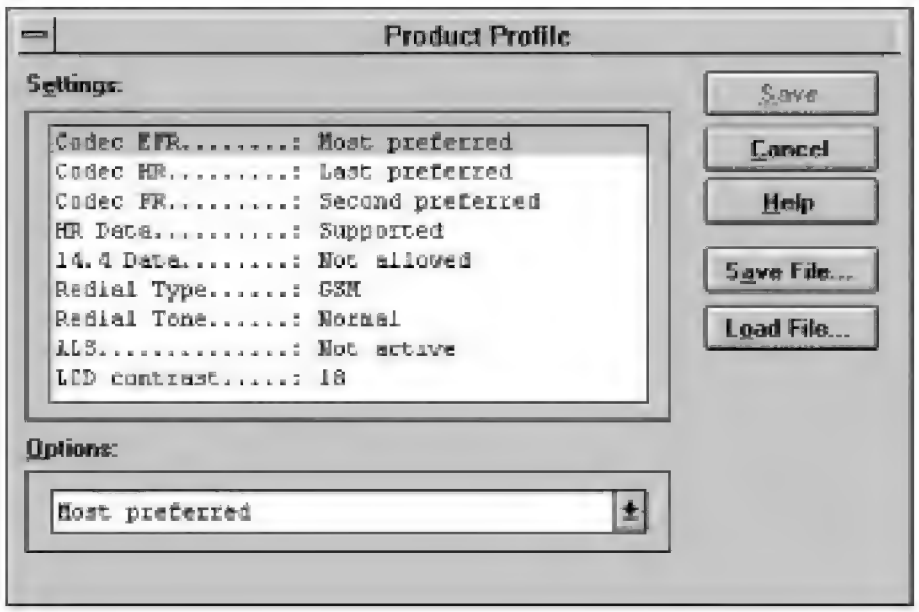
Software

Product Profile... command

Activation	Status Bar Text
Alt, S,P	Open Product Profile settings dialog box.

Function is used for making product profile settings.

When command is activated the product profile information is read from EEPROM and **Product Profile** dialog is opened.



Dialog mode: **modal**

Product Profile dialog has following items:

Settings list box (ALT+E):

A list where user can select desired setting.

User can toggle setting with following **Options** drop list or by double clicking desired setting in list box.

Options drop list (ALT+O):

List allows user to set options to each settings which are listed in **Settings** list box.

Save(OK) button (ENTER)

Selections are accepted and saved to EEPROM.

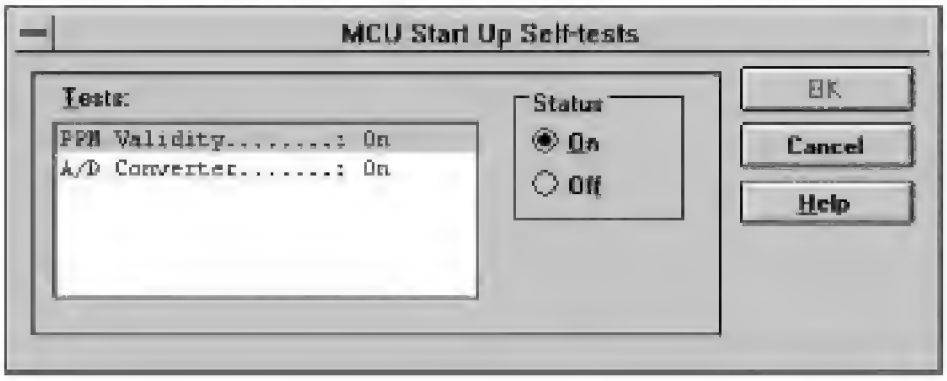
Cancel button (ESC)

Selections are ignored and control is returned back to main menu.

Start Up Self–tests... command

Activation	Status Bar Text
Alt, S,S	Open MCU start Up self–tests dialog box.

Function is used for changing the state of the EEPROM selectable tests in **MCU Start Up Self–tests** dialog.



Dialog mode: **modal**

MCU Start Up Self–tests dialog has following items:

Tests list box (ALT+T):

When dialog is opened, the previous values will be read from the MCU EEPROM and shown on the list box.

Status group:

When radio button **On** is selected, the test will be run every time when automatic start up self–tests are activated (e.g. in power up).

Save button (ENTER)

Selections are accepted and saved to EEPROM. A power up routine is made to phone.

Cancel button (ESC)

Selections are ignored and control is returned back to main menu.

Selectable Start–Up self tests:

1. PPM Validity

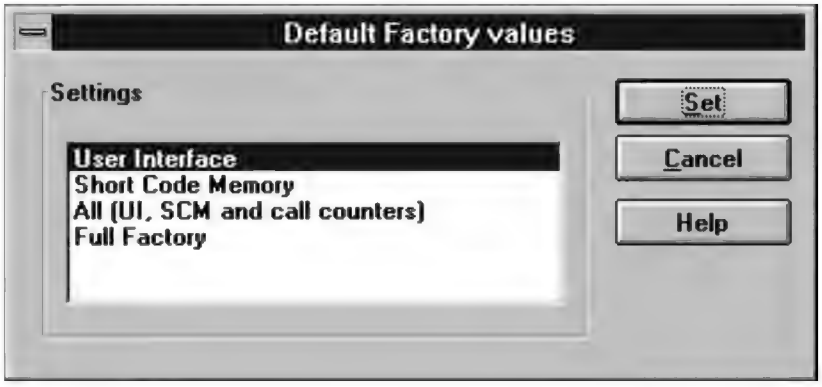
3. A/D Converter

Set Factory Values... command

Activation	Status Bar Text
Alt, S,V	Set factory values

Application does not ask confirmation. Next kind of text will be shown to user:

“Setting UI and SCM Factory values...”



Dialog mode: **modal**

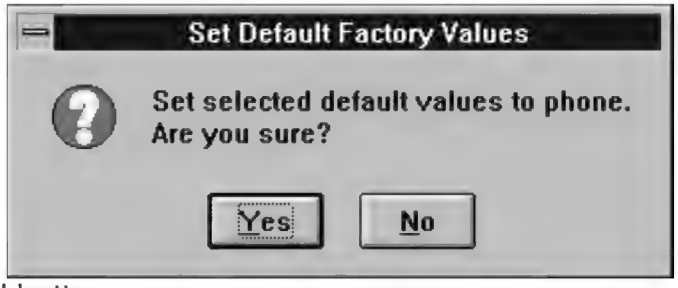
Default Factory Values dialog has following items:

Settings list box:

Contains the selectable factory values.

Set button:

Sets the selected factory value to phone. Before setting software asks confirmation:



Cancel button:

Closes the Default Factory Values dialog.

Phone Identity... command

Activation	Status Bar Text
Alt, S,I	Open Phone Identity dialog box for editing

Function is used to edit phone identity. With this dialog IMEI or SIM locks may be changed in following manner:

– current phone information is read from phone

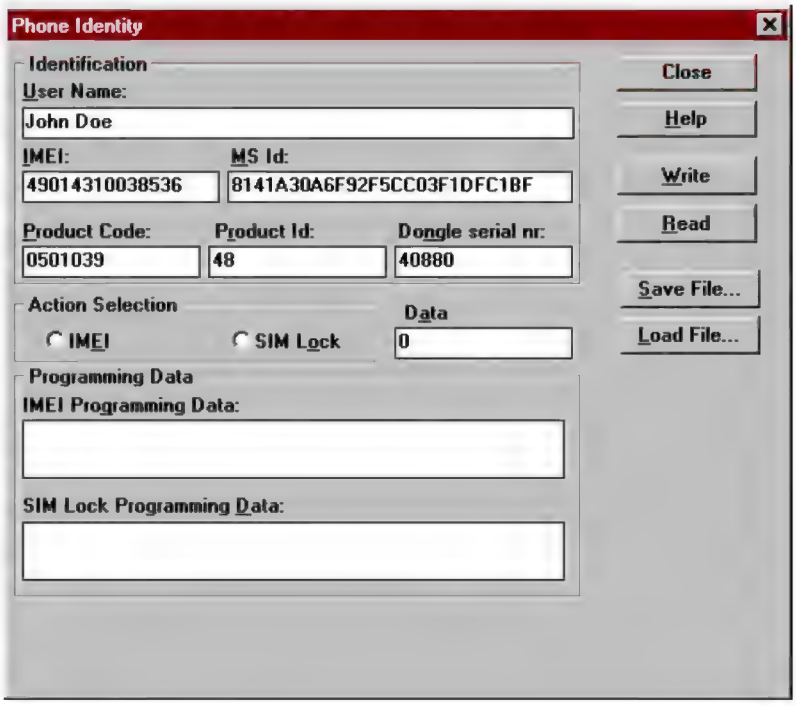
– user edits User Name (and IMEI and Product Code, if they were not read correctly from phone)

– dialog information is saved to file, which is sent to secure place where actual programming information may be constructed

– programming information is got from secure place in an other file, which is loaded to dialog

– program checks input values and if they are correct programming information is written to phone

Function opens **Phone Identity** dialog.



Dialog mode: **modal**

Phone Identity dialog has following items:

User Name edit box (ALT+U):

Field where user can enter user identification.

IMEI edit box (ALT+I):

Field where user can enter IMEI value. Field can contain up to 40 digits.This field is automatically filled, if ME is connected to the PC when dialog is loaded.

Product Code edit box (ALT+P):

Field where user can enter Product Code value. This field is automatically filled, if ME is connected to the PC when dialog is loaded.

MS Id edit box (ALT+M):

Field where user can enter MS Id corresponding programming data. This field is automatically filled, if ME is connected to the PC when dialog is loaded.

Product Id edit box (ALT+R):

Field where user can enter Product Id. This field is automatically filled, if ME is connected to the PC when dialog is loaded.

Dongle Serial nr. edit box (ALT+N):

Field where user can enter Product Id. This field is automatically filled, if ME is connected to the PC when dialog is loaded.

Data edit box (ALT+A):

Field where user can enter Data entry. This field is automatically filled, when file is loaded or data is saved.

IMEI radio button:

File and ME operations contains only IMEI data.

SIM Lock radio button:

File and ME operations contains only SIM Lock data.

IMEI Programming Data edit box (ALT+I):

IMEI programming data is read from file or entered by user to this field.

SIM Lock Programming Data edit box (ALT+D):

SIM Lock programming data is read from file or entered by user to this field.

Close button (ESC):

Cancels all edits and does not save values to phone.

Help button

Opens a help text.

Write button (ALT+W):

Writes programming data to phone. Actions are selected with Action Selection radio button.

Read button (ALT+R):

Reads identification data from phone and shows it in dialog controls. Needed data is selected by Action Selection radio button.

Save File... button (ALT+S):

Writes a file containing data needed by security place application to create needed programming data. File is selected with File Save As dialog.

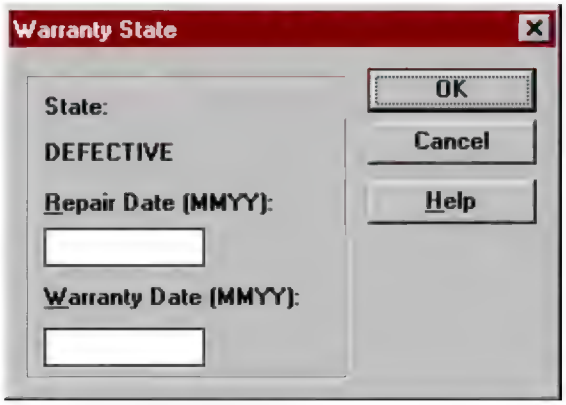
Load File... button (ALT+L):

Reads a file containing data needed to program selected data. File is selected with File Open dialog.

Warranty State... command

Activation	Status Bar Text
Alt, S,W	Open Warranty State dialog box

This command is used to set the warranty state of a phone. When selected application opens **Warranty State** dialog box.



Dialog mode: **modal**

Warranty State dialog has the following items:

State static text:

USE

For nomal phones.

DEFECTIVE

For phones which are being swapped. A warranty and other information is transferred to the working phone.

EXCHANGE

For phones which are already repaired from **DEFECTIVE** one.

Repair Date edit box:

When Warranty State is **USE** and PKD–1CS or PKD–1NS dongle is connected user can edit repair date. Otherwise field is read only. Format is MMYY, where MM stands for month digits and YY stands for year digits.

Warranty Date edit box:

When state is **DEFECTIVE** and PKD–1CS or PKD–1NS dongle is connected user can edit warranty date. When warranty date

is saved warranty state will be **EXCHANGE**. Format is MMYY, where MM stands for month digits and YY stands for year digits.

OK button (ENTER):

Closes the dialog box and saves the edited date to the phone. This button is enabled only when phone is Repair Date or Warranty Date is changed.

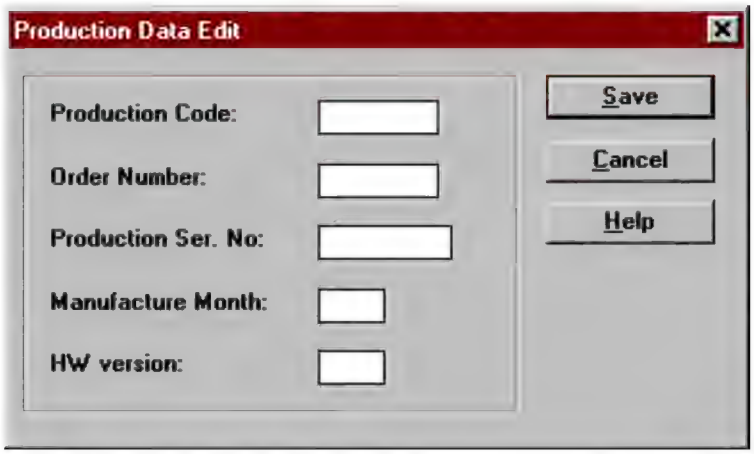
Cancel button (ESC):

Closes the dialog box and *does not* save the warranty state to the phone.

Production Data Edit... command

Activation	Status Bar Text
Alt, S,P	Open Production Data Edit dialog box

This command is used for programming HW version to phone. Function opens the following **Production Data Edit** dialog box.



Dialog mode: **modal**

Production Data dialog has the following items:

Production Code edit box:

User can edit production code.

Order Number edit box (read only):

Displays order number. Order number “???????” is accepted, but not written to phone.

Production Ser. No edit box (read only):

Displays production serial number.

Manufacture Month edit box (read only):

Displays manufacturing month.

HW Version edit box:

User can edit HW version.

OK button (ENTER):

Closes the dialog box and writes HW version to ME.

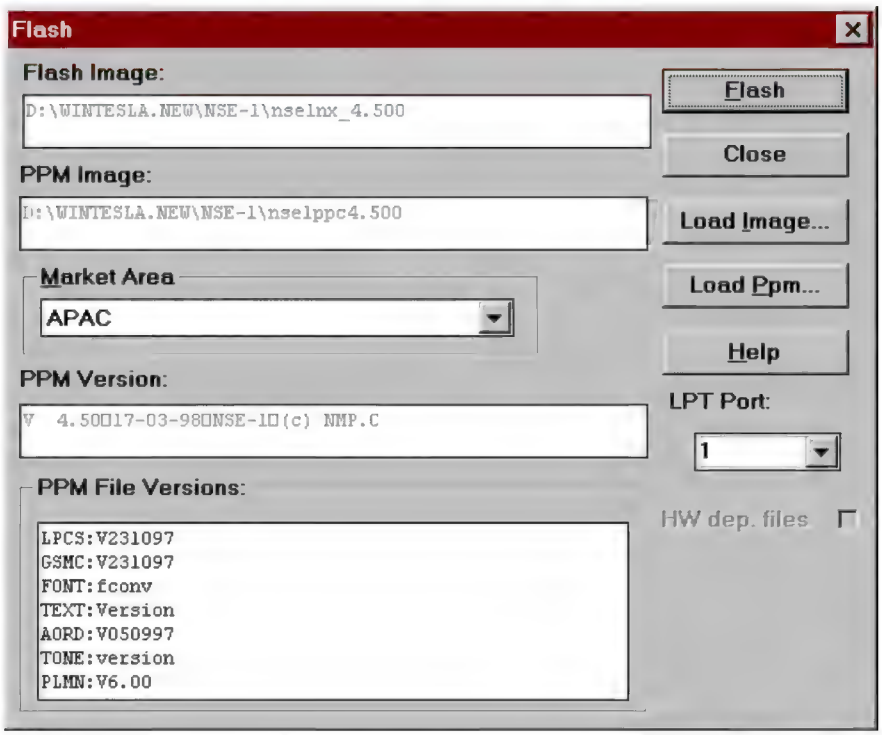
Cancel button (ESC):

Closes the dialog box and *does not* write HW version to ME.

Flash Phone... command

Activation	Status Bar Text
Alt, S,F	Open Flash Phone dialog box.

This command is used for flashing new software into the phone. Function opens the following **Flash** dialog box. When flashing is started, waiting windows is showed which tells the user approximated flashing time. Flashing files are delivered in product and market area specific flash packages. These packages should be unpacked to product specific sub-directory of WinTesla directory e.g. *C:\WINTESLA\NSE–1* for NSE–1 flash packages and *C:\WINTESLA\NSE–3* for NSE–3 flash packages. This directory will then contain product specific INI–file e.g. NSE–3.INI in which different market areas and files are described.



NOTE: This is a screen sample, actual information may differ.

Dialog mode: **modal**

Flash dialog box has following items:

Flash Image edit field (read only):

Displays path of image file to be flashed.

PPM Image edit field (read only):

Displays path of PPM package file to be flashed.

PPM Version edit field (read only):

MCU SW version string of the PPM package.

Market Area drop down list box (ALT+M):

User can select correct market area for phone. With this selection correct image and PPM files are loaded to edit fields. Usually this is the correct way to select files to be flashed.

PPM File Versions edit field (read only):

Lists the file versions of PPM package.

Flash button (ALT+L):

Starts flashing of selected file to phone. Before flashing asks, does user want to save all user settings to file (and load them after flashing). If reading user settings to ME or writing them to ME failed, Restore Default User Settings dialog is opened and user can restore default settings to phone. See Restore User Defaults... command.

Load Image button (ALT+I):

Opens Open File dialog, with which user can select an image file to be flashed to ME. If user selects OK button, the name of selected file is copied to Flash Image edit field. Usually you should use Market Area list box to select Image file.

Load Ppm button (ALT+P):

Opens Open File dialog, with which user can select a PPM package file to be flashed to ME. If user selects OK button, the name of selected file is copied to PPM Image edit field. Usually you should use Market Area list box to select PPM file.

LPT Port list box:

User can select parallel port to be used when flashed.

HW dep. files check box (disabled):

Close button (ESC):

Closes the dialog box and *does not* start flashing.

During flashing status dialog is showed. After phone is flashed current time in PC is set to phone and user is asked to check that the time is correct.

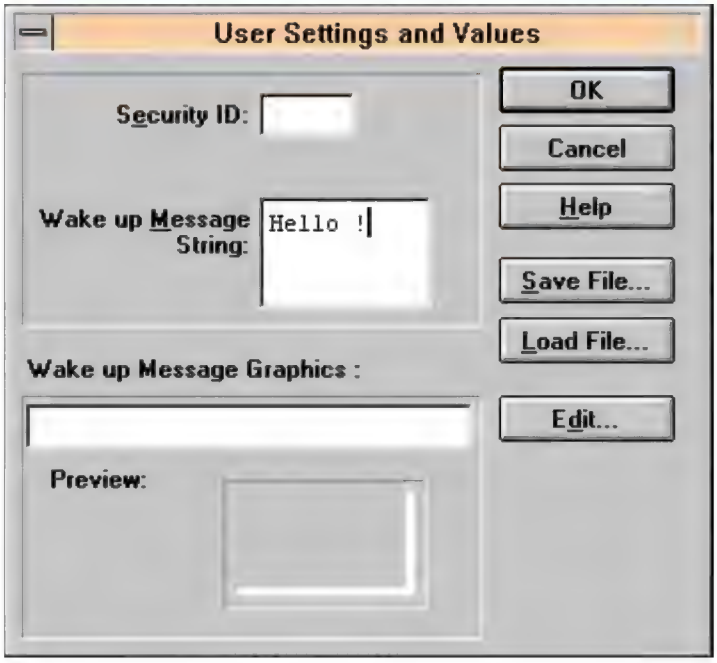
Dealer

The dealer sub menu offers functions for ME settings for dealers.

User Settings... command

Activation	Status Bar Text
Alt, D,U	Open User Setting dialog box

This command is used to edit some user settings. When this command is selected user is asked to read settings from the phone. After answering that dialog following **User Settings and Values** dialog is displayed.



NOTE:
This is a screen example. All controls not visible for all phone types.

Dialog mode: **modal**

User Settings dialog box has following items:

Security ID edit box:

User can change security code in ME.

Preview picture:

Shows graphical Wake up message. This picture is not available, if phone does not support WUG.

Wake up Message Graphics edit box (read only):

Shows name of file picture file loaded. This picture is not available, if phone does not support WUG.

Save File... button (ALT+S):

User can save user settings to file.

Load File button (ALT+L):

User can load user settings from file.

Edit... button (ALT+D):

Start Windows Paintbrush to edit loaded or saved graphical Wake up message. This picture is not available, if phone does not support WUG.

OK button (ENTER):

Writes user settings to phone.

Cancel button (ESC):

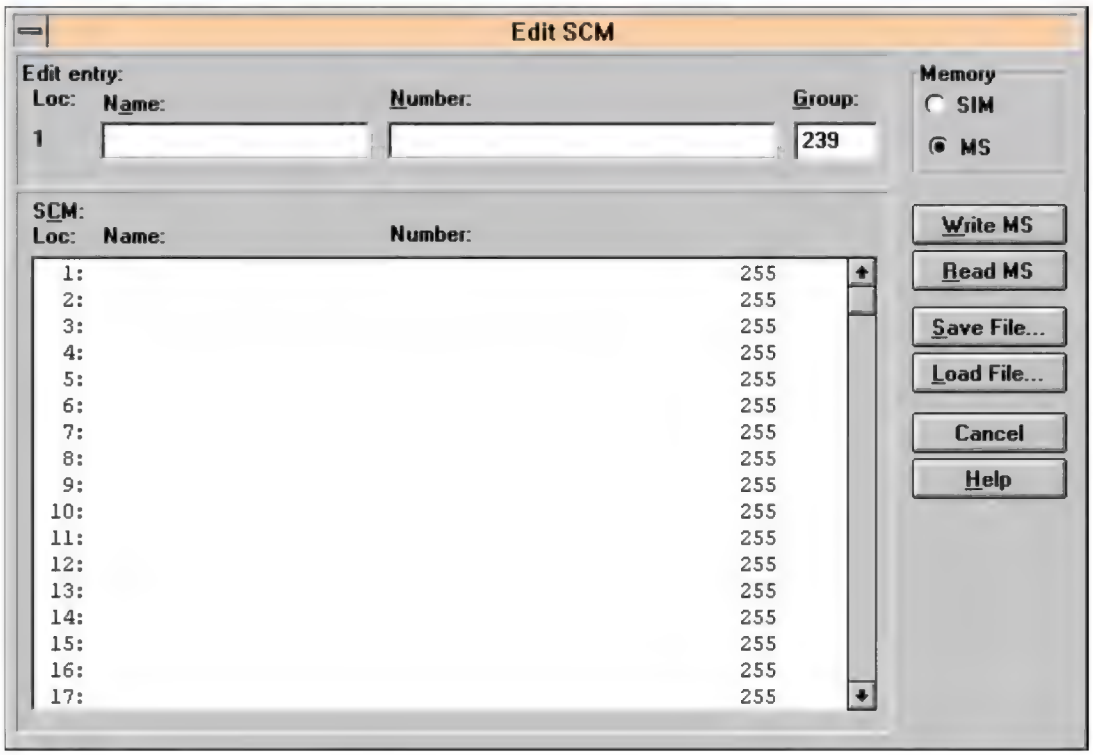
Closes the dialog box

Short Code Memory... command

Activation	Status Bar Text
Alt, S,C	Open Edit SCM dialog box.

This command is used for reading, storing and modifying the SIM/ME SCM values. Before dialog is opened number of memory places is read from phone. If phone does not have SCM in ME Memory selection is disabled and SIM is used as default. If SIM is selected user may be asked to insert PIN and/or wait for SIM to wake up.

Function opens the following **Edit SCM** dialog:



Dialog mode: **modal**

Edit SCM dialog has the following items:

Loc static text:

Displays current location.

Name edit box (ALT+A):

Edit the Name.

Number edit box (ALT+N):

Edit the Number.

Group edit box:

Edit the Group number.

SCM list box (ALT+C):

List for available names and numbers.

Write MS / Write SIM button (ALT+W):

Write SCM values to phone or SIM and checks the validity of names and numbers.

Read MS / Read SIM button (ALT+R):

Read SCM values from phone or SIM.

Save File... button (ALT+S):

Opens a default Windows **File Save As** dialog and asks filename where to save SCM values.

Load File... button (ALT+L):

Opens a default Windows **File Open** dialog and asks filename where from load SCM values. Checks the validity of names and numbers.

Memory group box:

When memory is selected **SCM** list box size is adjusted to correspond memory size. Adjusting is done either adding empty entries to the end or removing entries from the list box.

SIM radio button:

Selects dialog to edit SIM memory. Note PIN code must be set before editing SIM. During SIM selection user may be asked to insert PIN code and/or wait for SIM to wake up.

MS radio button:

Selects dialog to edit phone memory. This is default when dialog is opened.

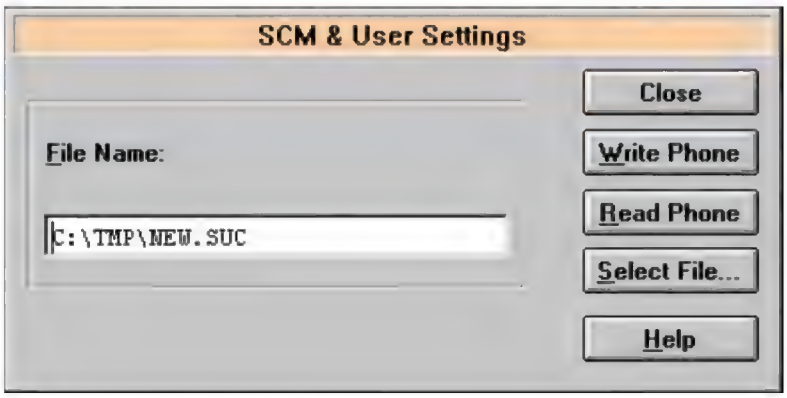
When all values are sent and responses received, waiting window is removed and **Edit SCM** is back in control. The waiting state can be broken with **Cancel** (ESC) button. If writing to the ME is broken, only part of the SCM entries in the ME may be changed.

SCM & User Settings... command

Activation	Status Bar Text
Alt, D,M	Open SCM & User settings dialog box.

This command is used to get SCM and user settings from phone to file and vice versa. Following information is loaded/saved with this dialog: all user settings, graphical/text wake up message, SCM, alarms, calendar items and CLI logos and groups. Only values of supported features are saved or loaded, e.g. NSE–1 does not have graphical wake up message. Also SCM in SIM is not saved or loaded.

When data is written or read phone waiting dialog is showed to user.



Dialog mode: **modal**

SCM & User Settings dialog box has following items:

File Name edit field (ALT+F):

User can edit file name or select file with Open File dialog. When dialog is opened, it contains name of the previously saved or loaded file.

Write Phone button (ALT+W):

Loads settings from file and writes them to phone.

Read Phone button (ALT+R):

Reads settings from phone and writes them to file.

Select File button (ALT+S):

Opens Open File dialog, with which user can select the file, that contains the data to be loaded to ME or file to which data is saved from ME. If user selects OK button, the name of selected file is copied to File Name edit field.

Close button (ESC):

Closes the dialog box.

Set UI/DEV Default Values... command

Activation	Status Bar Text
Alt, D,V	Reset phone to UI and SCM factory settings

After selection application asks confirmation: “Are you sure you want to set UI/DEV to factory settings?”. If Yes is answered, default settings are resetted to phone.

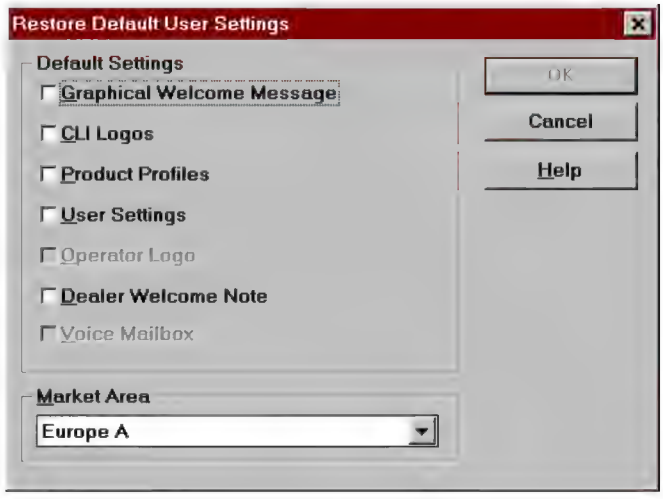
Restore User Defaults... command

Activation	Status Bar Text
Alt, D,R	Open Restore Default User Settings.

This command is used to restore Default User Settings, if they have degenerated. Dialog may be opened from menu, or is opened automatically, when loading or saving user settings fails or is skipped during flashing (see Flash Phone... command). The dialog is also opened after full factory set.

Default settings are loaded from files in product specific subdirectory of WinTesla directory e.g. for NSE–3 this directory could be *c:\wintesla\nse–3*. Into these directories user should unpack all flash packages. Market areas and corresponding files are described in INI–file in product specific subdirectory e.g. for NSE–3 this file would be *c:\wintesla\nse–3\nse–3.ini*. INI–file is common to all flash packages, but market areas are added to Market Area list, when new flash packages are unpacked to product specific subdirectory.

Selecting Restore User Defaults opens following Restore Default User Settings dialog.



NOTE: This is a screen example. Actually enabled settings may differ.

Dialog mode: **modal**

Restore Default User Settings dialog box has following items:

Default Settings static text:

User can check one or more check boxes to restore corresponding defaults from file to ME. Check boxes are disabled/enabled according to settings available in selected Market Area.

Graphical Welcome Message check box (ALT+G):

When checked user selects to restore default graphical welcome message.

CLI Logos check box (ALT+C):

When checked user selects to restore default CLI logos.

Product Profiles check box (ALT+P):

When checked user selects to restore default product profiles.

User Settings check box (ALT+U):

When checked user selects to restore default user settings.

Operator Logo check box (ALT+O):

When checked user selects to restore default operator logo.

Dealer Welcome Note check box (ALT+D):

When checked user selects to restore default dealer welcome note.

Voice Mailbox check box (ALT+V):

When checked user selects to restore default voice mailbox number

Market Area drop list (ALT+M):

User selects market area of the phone.

Write Phone button (ALT+W):

Loads settings from files and writes them to phone.

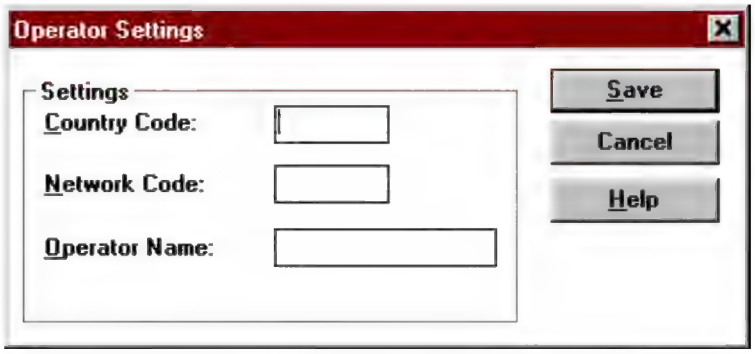
Close button (ESC):

Closes the dialog box.

Operators Settings... command

Activation	Status Bar Text
Alt, D,O	Open Operator Settings dialog.

This command is used to set operator settings This selection opens following **Operator Settinngs** dialog.



Dialog mode: **modal**

Operator Settings dialog box has following items:

Settings group:

Country Code edit box (ALT+C):

User can edit country code.

Nerwork Code edit box (ALT+N):

User can edit network code.

Operator Name edit box (ALT+O):

User can edit operator name.

Save button (ALT+S):

Saves settings to phone and closes dialog..

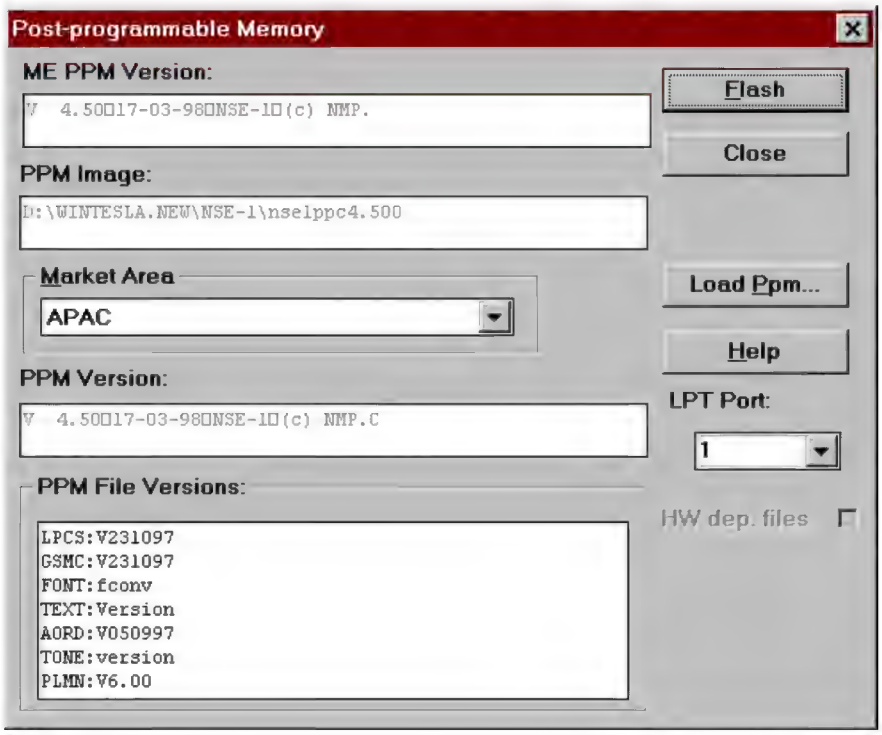
Cancel button (ESC):

Closes the dialog box and do not save settings to phone.

Post–programmable Memory... command

Activation	Status Bar Text
Alt, D,P	Open Post–programmable Memory dialog box.

This command is used to load PPM from file to phone. Application checks version numbers of PPM package and ME, when file is loaded.



NOTE: This is a screen sample, actual information may differ.

Dialog mode: **modal**

Post–programmable Memory dialog box has following items:

ME PPM Version edit field (read only):

MCU SW version string of the phone.

PPM Image edit field (read only):

Displays path of PPM package file to be flashed.

Market Area drop down list box (ALT+M):

User can select correct market area for phone. With this selection PPM file is loaded to edit field. Usually this is the correct way to select files to be flashed.

PPM Version edit field (read only):

MCU SW version string of the PPM package.

PPM File Versions edit field (read only):

Lists the file versions of PPM package.

Flash button (ALT+L):

Starts flashing of selected file to phone. Before flashing dialog asks, does user want to save SCM & User settings to file (and load them after flashing).

Load Ppm button (ALT+P):

Opens Open File dialog, with which user can select a PPM package file to be flashed to ME. If user selects OK button, the name of selected file is copied to PPM Image edit field. Usually user should use Market Area to select correct PPM package.

LPT Port list box:

User can select parallel port to be used when flashed.

HW dep. files check box (disabled):

Close button (ESC):

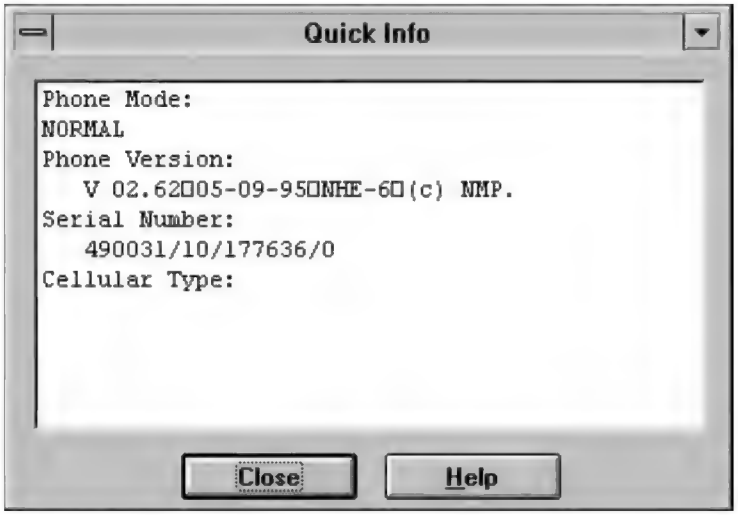
Closes the dialog box and *does not* start flashing.

View

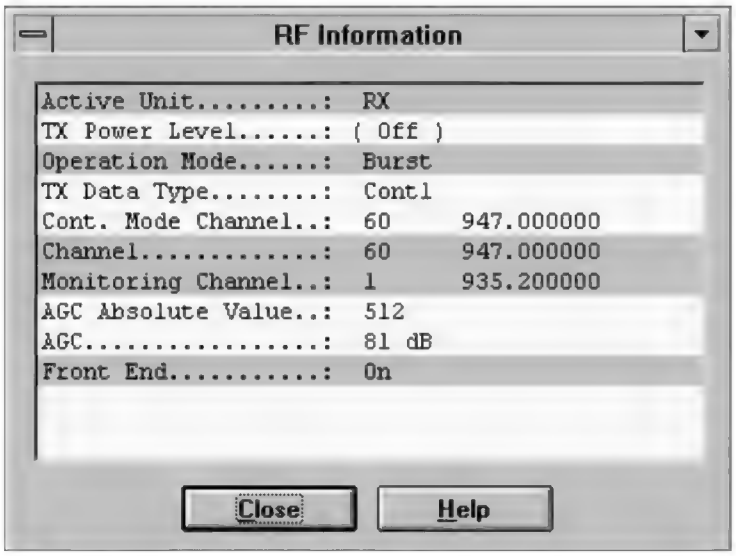
Quick/RF Info... command

Activation	Status Bar Text
Alt, V,Q	View Quick/RF information.

If phone is in *normal* mode following **Quick Info** is shown:



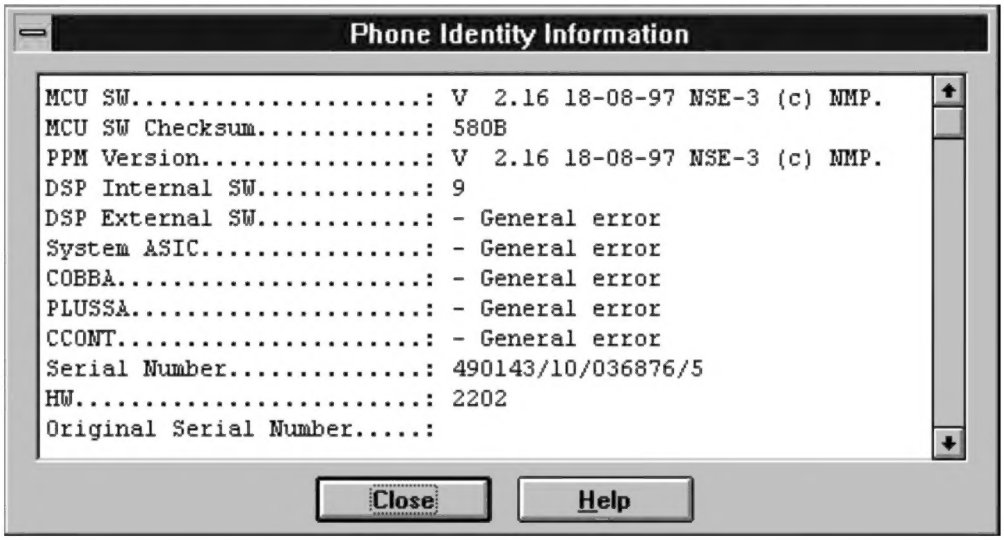
If phone is in local mode following **RF Information** is shown. Information is shown in a modeless dialog which may be left open during other operations. It is also updated when ever needed.



Phone Identity... command

Activation	Status Bar Text
Alt, V,P	View Phone Identity.

Command opens **Phone Identity Information** dialog, which shows identification information. Information is shown in a modeless dialog which may be left open during other operations. It is also updated when ever needed.


Phone Identity Information
MCU SW.....: V 2.16 18-08-97 NSE-3 (c) NMP.
MCU SW Checksum.....: 580B
PPM Version.....: V 2.16 18-08-97 NSE-3 (c) NMP.
DSP Internal SW.....: 9
DSP External SW.....: - General error
System ASIC.....: - General error
COBBA.....: - General error
PLUSSA.....: - General error
CCONT.....: - General error
Serial Number.....: 490143/10/036876/5
HW.....: 2202
Original Serial Number.....:
Close
Help

The After Sales Software has an initialisation file which has extension .INI. Initialisation file is TESLA.INI which includes all next selections (on mentioned menus or dialogs) and parameters:

RF Controls dialog ([NSB/E/K–3RF])

Active Unit (Active Unit=)

TX Power Level (TX Power Level=)

Operation Mode (Operation Mode=)

TX Data Type (TX Data Type=)

Continuous Mode Channel (Cont Mode Channel=)

Channel (Channel=)

Monitoring Channel 1 (MonitoringChannel=)

AGC dB value (AGC=)

- AGC Absolute Value (AGCAbsolute=)
- Front End (FrontEnd=)

Call Simulation dialog ([NSB/E/K–3CALLSIM])

Monitoring Channel 2 (Monitoring Channel 2 =)

Monitoring Channel 3 (Monitoring Channel 3 =)

Monitoring Channel 4 (Monitoring Channel 4 =)

Monitoring Channel 5 (Monitoring Channel 5 =)

Monitoring Channel 6 (Monitoring Channel 6 =)

All selections and parameters which are not same as in the RF Controls menu.

TX Power Tuning dialog ([TX Power Tuning])

TX power coefficients

TX I/Q Tuning dialog ([TX I/Q Tuning])

TX I/Q

Appendix 1, Vocabulary

Abreviation	Description
ASIC	Custom circuit which for instance controls communication between MCU and DSP
JBU–5	Service box
CLF	Common Look and Feel
CLI	Calling Line Identification
COBBA	Common Base Band Analog
DATA	DATA interface module
DAU–9S/P	MBUS/FBUS cable
DLL	Dynamic Link Library
DSP	Digital Signal Processor which controls radio interface and speech coding/decoding
EEPROM	Memory for adjustment parameters (Electrically Erasable and Programmable Read Only Memory)
FBUS	Fast serial bus
IMEI	International Mobile Equipment Identification code
IR	Infra Red transmitter
M2BUS	Serial communication bus which can be connected to accessory devices and test PC
MCU	Master Control Unit processor
MDI	MCU DSP Interface; message interface via ASIC registers
ME	Mobile Equipment
MODAL (dialog box)	A modal dialog box requires the user to complete interaction within a dialog box, and close it before continuing with any further interaction outside the window.
MODELESS (dialog Box)	A modeless dialog box allows the user to interact with other windows and applications.
MS	Mobile Station

PC	IBM PS/AT or compatible personal computer
PCI	Phone Controlling Interface SW for PC
PKD–1/1NS/1CS	Hardware protection key (DESKEY DK2) for protecting service software from illegal copying. The software will not work without this key !
RF	Radio Frequency parts
RTC	Real Time Clock
SW	Software
TDF–4	Flash security box
UI	User Interface